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ADJUSTING AGRICULTURAL PRODUCTION AND DISTRIBUTION IN SOUTH CENTRAL WEST VIRGINIA TO MEET HOME MARKET DEMANDS



BY
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Foreword

"HELP WEST VIRGINIA FEED HERSELF"

With the development of industrial centers in nearly all parts of West Virginia the fundamental agricultural problem of our state has been to adjust our farm management so as to carry out the above slogan adopted some years ago by the organized farming interests of the state.

Economic studies made by Professor A. J. Dadisman in Brooke, Preston, Greenbrier, Monroe, and other counties; the analyses of economic conditions in over two hundred of the communities of the state worked out in connection with country life conferences; and the county farm bureau programs of work combined each year into a state program; have all made their definite contribution toward carrying out this slogan.

For some time, however, the agricultural interests have been feeling the need of just such a detailed study of our West Virginia consuming markets as has now been completed for the Charleston trade territory.

At the community meetings and country life conferences to be held in various country communities of the state, the needs of this Charleston market can now be more definitely explained to the farmers and the re-adjustment of their farming operations to meet such needs will undoubtedly be hastened as a result of this study.

Already there has come into existence important marketing machinery such as the West Virginia Potato Growers' Association which marketed last year several car-loads of "Mountain State Brand" potatoes in Charleston, the West Virginia Poultry Producers' Association which placed several thousand dozens of "Mountain State Brand" eggs in the Charleston market, and the Inwood Fruit Growers' Club which is in position to supply "Johnny Applesseed Brand" apples through the marketing machinery of the Federated Fruit Growers.

To these cooperative organizations as well as to the formerly established channels of trade the information contained in this bulletin will be of direct value.

It is planned to continue these studies of the main consuming trade areas of the state until all have been studied. Out of them it is believed will grow not only more confidence, and therefore better farming, in the rural communities, but a better stabilized market in the consuming centers, which, in the long run, will react to the benefit of merchants and consumers.

With the assistance of extension specialists in Business Administration from the University steps are being taken by both wholesale and retail organizations of the state to improve the efficiency of their business methods so as to shorten the gap between producer and consumer, which is the ultimate goal of this better marketing program.

NAT L. FRAME,

Director Agricultural Extension

COOPERATING AGENCIES AND INDIVIDUALS

- 1.—West Virginia University Agricultural Experiment Station.
- 2.—West Virginia University Extension Division.
- 3.—Bureau of Agricultural Economics, United States Department of Agriculture.
- 4.—West Virginia Farm Bureau Federation.
- 5.—County Agricultural Agents in counties included in this study.
- 6.—Federal Crop and Livestock Statistician for West Virginia and Kentucky.
- 7.—Chamber of Commerce, Charleston.
- 8.—Chesapeake and Ohio Railroad.
- 9.—Baltimore and Ohio Railroad.
- 10.—New York Central Railroad.
- 11.—American Railway Express.
- 12.—Charleston Interurban Railway.
- 13.—Charleston Wharf Boat Company.
- 14.—Charleston City Department of Health.
- 15.—Superintendent of Mails, Charleston Post Office.
- 16.—State Highway Commission.
- 17.—Wholesale and Retail Distributors of Charleston.
- 18.—Farmers in Various Parts of the Territory.

ADJUSTING AGRICULTURAL PRODUCTION AND DISTRIBUTION IN SOUTH CENTRAL WEST VIRGINIA TO MEET HOME MARKET DEMANDS

A Report of the Extent to Which Farmers in Thirteen Counties Surrounding Charleston Are Meeting the Demand for Selected Food Commodities in Charleston and Its Trade Territory

By

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INTRODUCTION

This report presents the results of a food consumption, production, and distribution survey of Charleston, West Virginia, and its trade territory as defined in the body of the report. It gives special attention to the quantity of certain food products which are shipped into the market from out of state areas and endeavors to point out a means by which farmers may so adjust their production and distribution as to take advantage in a better way of the home market.

The study was begun in February, 1924, and data were collected for the twelve months' period ending December 31, 1923. The first part of the report presents facts which show what may be expected as to the constancy of market demand. The second part details the quantities of selected food commodities shipped into the Charleston market, the quantity remaining in Charleston, and the quantity going to the outlying trade. The third part describes the distributing machinery as it is set up in Charleston. The fourth part determines the status of commercial production of the commodities considered and recommends certain adjustments in production and distribution.

From the data presented in the report farmers can determine which crops and enterprises offer the best opportunity for profit. These same data will form the basis for an agricul-

tural extension program in the area on the part of the state agencies and the farm bureau.

Central West Virginia is recognized by national distributing agencies as one of the best markets for farm products grown outside of the state. A study of the region shows that a large part of these products may be grown locally.

Of all the factors entering into agriculture as a business, the two of major importance to the producer are: first, to select crops which are adapted to the physical conditions, i. e., climate, seasons, soil, etc.; and second, to select crops for which there is a market.

The first factor has received much attention from agricultural specialists and farmers and much progress has been made along this line. These physical factors will be discussed only briefly in this report.

After it has been determined that a crop can be successfully grown under given physical conditions there remains the question of a market. This study has taken up several things that the producer should know about his market, namely:

- (1) The kinds, quantity, and quality of products demanded by the market.

- (2) The probable constant, increased, or decreased demand for these products on his market.

- (3) Comparative prices on his market with competing markets.

- (4) Who are his competitors in production; their advantages and disadvantages over the local producer?

- (5) What are the transportation facilities available for each of his competitors.

- (6) The marketing machinery which has been built up in his market.

Acknowledgment is made for the help rendered in making this study by the specialists of the Extension Division and Experiment Station who have checked statements regarding their special fields of work.

Definitions: In this report "Charleston's Trade Territory" includes that territory composed of Boone, Clay, Fayette, Greenbrier, Jackson, Kanawha, Mason, Monroe, Nicholas, Putnam, Raleigh, Roane, and Summers counties.

"Charleston" will mean the incorporated City of Charleston and its suburbs, Kanawha City, South Charleston and Dunbar, having a population of about 56,000. The fourteenth census showed Charleston and its suburbs as having a population of 44,000, but later estimates show the former figures.

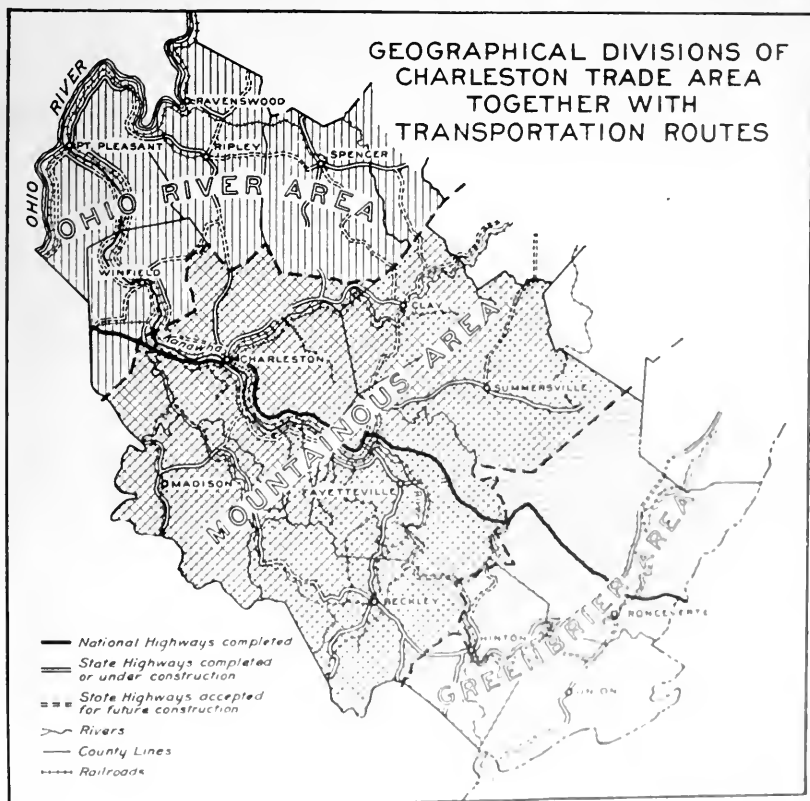
In establishing the boundaries of Charleston's Trade Territory more consideration was given to the movement of farm products to market than to the limits of the area served by Charleston distributors.

Charleston and Trade Territory

A portion of the Charleston Trade Territory is rugged mountainous country and devoted almost exclusively to mining but there are numerous valleys devoted to agriculture, while another portion is gently rolling pasture land, and still another portion including the Kanawha and Ohio river bottoms is devoted to field and truck crops, and the area about Charleston has developed into an industrial section. The accompanying map on this page shows the divisions of the area. The counties about Charleston taken together make up a unit. Highways and rivers encourage trade within the area and the natural geographic barriers cut them off from other sections.

RAILROADS

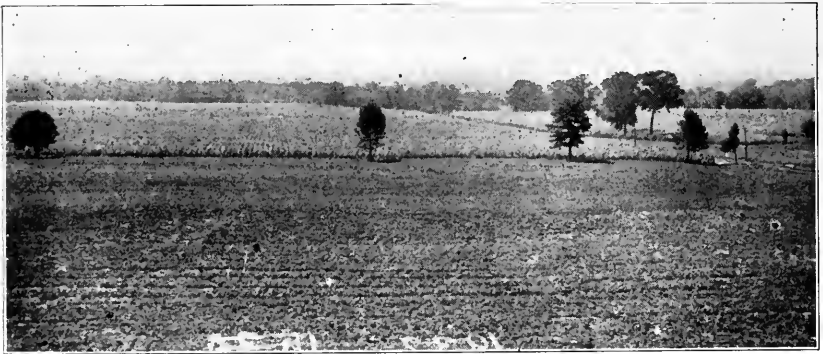
Four railroad systems pass through the Charleston District. The Chesapeake and Ohio Railway gives a thoroughfare on the east to the seaboard at Newport News, Virginia, and on the west to the Mississippi River at St. Louis and to the Great Lakes



at Chicago. The Ohio Central Division of the New York Central Railroad provides a second thoroughfare to the Mississippi River and the Great Lakes via Columbus, Ohio. The Baltimore and Ohio System provides connection to points in the north, while the Virginian Railroad which has trackage rights over the Chesapeake and Ohio into Charleston provides a south-easterly connection with Norfolk, Virginia.

WATER TRANSPORTATION

The territory is also supplied with water transportation as far up the Great Kanawha River as Deepwater (36 miles south-east of Charleston). The boats operating on the Great Kanawha River make connection with those on the Ohio River at Point Pleasant which permits water traffic to Pittsburgh and points along the Ohio River.



Typical View in Ohio River Valley Area

HIGHWAYS

The State Highway System takes in 1086 miles of road in the Charleston Trade Territory, as shown in the map on page 7. Of the 1086 miles designated as state roads 207 have been completed and 406 are under construction. This system of roads will connect all of the principal producing areas with the consuming sections in the territory, and points in the interior will be made accessible by the county roads.

POPULATION OF CHARLESTON TRADE TERRITORY

The combined population of the thirteen counties in 1920 was 404,283. Of this number 364,818 or 90.2 per cent were

native born white, 29,965 or 7.4 per cent were negroes, and 9,500 were foreign born white.

It is readily seen from a study of Table I which follows that there has been a distinct drift of population from the agricultural counties to the mining and industrial counties, while the population of the semi-agricultural counties has remained fairly constant. The table does not present the actual number of miners and industrial workers as many that are listed in the United States Census as farm operators live on the farm, but derive most of their cash income from work off the farm.

TABLE I.—POPULATION AND OCCUPATION BY COUNTIES FOR CHARLESTON TRADE TERRITORY (Fourteenth Census).

County	1920	1910	1900	Per cent Change 1900 to 1920	Fourteenth Census		
					Farm Operators	Employed in Mines.	Employed in Industry
Ohio River Area							
Jackson	18,658	20,958	22,987	—18	2,798	.....	85
Mason	21,459	23,019	24,142	—13	2,415	370	541
Putnam	17,531	18,589	17,330	+15	1,956	189	38
Roane	20,129	21,543	19,852	+ .1	2,448	.....	60
Mountainous Area							
Boone	15,319	10,331	8,194	+87	1,120	2,324	810
Clay	11,486	10,233	8,248	+38	1,069	146	128
Fayette	60,377	51,903	31,987	+93	1,461	13,196	1,750
Kanawha	119,650	81,457	54,696	+110	2,952	8,022	5,283
Nicholas	20,717	17,699	11,402	+81	1,670	510	2,420
Raleigh	42,482	25,633	12,436	+341	1,518	8,524	592
Greenbrier Area							
Greenbrier	26,242	24,833	20,683	+30	2,439	98	237
Monroe	13,141	13,055	13,030	+02	1,834	.....	36
Summers	19,092	18,420	16,265	+18	1,965	65	446
Total.....	404,283	337,691	261,252	+56	25,645	33,444	12,426

SOURCES OF INCOME

The principal sources of income in order of importance are mining, agriculture, trade and industry.

Mining.—In 1923 the income from coal and coke in the state of West Virginia amounted to \$275,967,000 and of this amount \$83,200,000 was produced in the Charleston Area. As shown in Figure 1 the income from coal for the year ending June 30, 1921, exceeded this amount considerably in both West Virginia and in the Charleston Area. The production of 1923 is the highest on record, but the price was much lower than in

1921. The steady increase in production is shown by this same chart. In 1897 the state produced 11,700,000 tons of coal, and in 1923, the record year in production, 86,110,000 tons were produced. Of this total the Charleston Area produced 4,343,000 tons in 1897 and 23,427,000 in 1923. The number of miners has shown a similar increase.

TREND OF COAL AND COKE PRODUCTION AND VALUE AND
NUMBER OF MINERS EMPLOYED, STATE OF
W. VA. AND CHARLESTON AREA

1897-1923

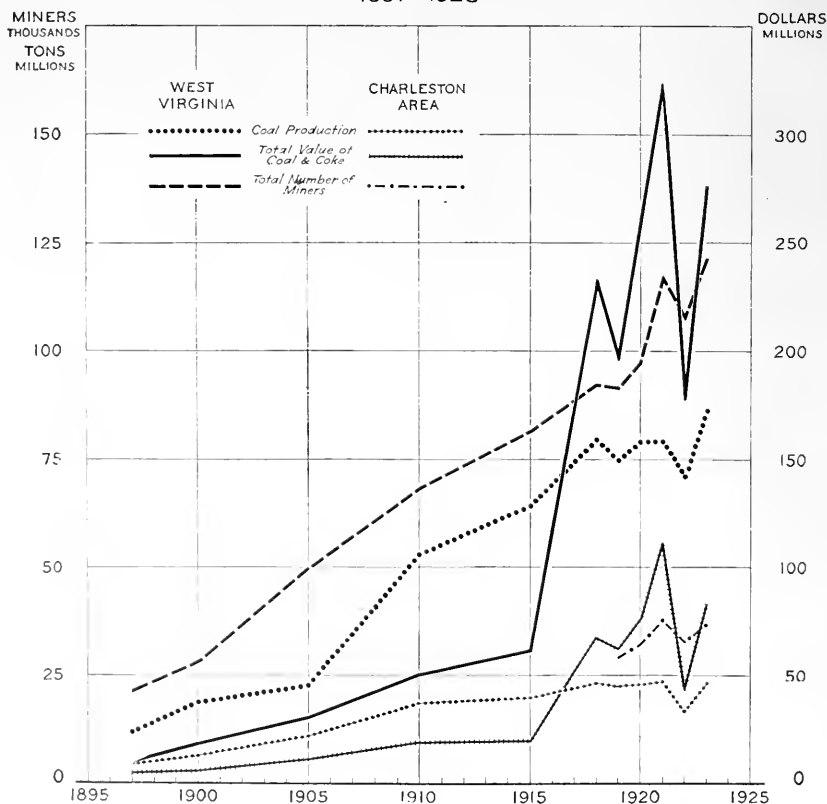


Figure 1.

Agriculture—There were 25,645 farm operators within the Charleston Trade Territory in 1920 as compared with 33,444 mine employees and 12,426 industrial laborers. In value of production agriculture was second only to mining. The prin-

cial crops and farm enterprises are corn, oats, wheat, tobacco, vegetables, livestock, dairying, and poultry.

Manufacturing.—The chief manufacturing industries in this section of the state are glass, steel and metal working, chemical, wood working, brick and clay products. Nicholas County is the local center of lumber and wood pulp manufacture.

The total value of products manufactured in the state of West Virginia in 1920 was \$471,970,877. Of this amount 15.1 per cent or \$67,190,395 was manufactured in the Charleston Area. (See Table II).

TABLE II.—COMPARISON OF MANUFACTURING ACTIVITY IN THE CHARLESTON TRADE TERRITORY WITH THAT OF WEST VIRGINIA (Fourteenth Census).

	Average Number Employees	Total Wages Thousands of Dollars	Cost Materials Thousands of Dollars	Value of Product Thousands of Dollars	value Added by Manf'g Thousands of Dollars
Charleston Trade Territory	12,426	15,426	35,272	67,190	31,938
Total West Virginia	83,036	101,840	270,940	471,971	201,030

THE CITY OF CHARLESTON

Besides being the State Capitol and the distribution point for a territory within a radius of forty or more miles, and the business center of one of the richest mining sections of West Virginia, Charleston has made considerable progress within the past ten years in industrial development. In fact, when discussing the city of Charleston it is difficult to exclude its industrial suburbs, Cabin Creek, Kanawha City, South Charleston, Dunbar, Institute, and Spring Hill, all of which are accessible by railroads, inter-urban lines and hard surfaced highways. The industrial growth may be attributed largely to the city's central location with respect to the larger cities in the north, east and west, and to the available raw materials—lumber, silica and clay, and fuel—both coal and gas.

According to the Census of 1920 the population of Charleston proper was 39,608, an increase of 27.7 per cent over that of 1910. A conservative estimate based on the number of water users and telephone subscribers as of December, 1923, would indicate a population of approximately 48,000 for Charleston proper, but when the industrial suburbs are included we arrive

at the figure 56,000 which is used in this study. Table III presents an analysis of Charleston's population as of 1920.

TABLE III.—POPULATION BY RACE AND PLACE OF BIRTH, CHARLESTON, WEST VIRGINIA (Fourteenth Census).

	1920		1910	
	Number	Per cent	Number	Per cent
Total Population.....	39,608	100.0	22,996	100.0
Native White.....	33,728	85.2	18,881	82.2
Foreign Born White.....	1,354	3.4	1,041	4.4
Negro	4,502	11.4	3,086	13.4

In Table IV, on occupations, which follows, it is shown that the proportion of men employed in manufacturing and mechanical industries is especially large. This grouping in Charleston is largely made up of well-paid, skilled workmen who are employed in glass factories, tool making, or building trades. Their high annual income is naturally reflected in the quality of food they consume.

TABLE IV.—NUMBER OF WAGE EARNERS IN DIFFERENT OCCUPATIONS IN CHARLESTON (Fourteenth Census).

Occupation	Total	Male	Female
All Occupations	16,890	13,032	3,858
Agricultural	129	120	9
Extraction of Mineral.....	465	463	2
Mfg. and Mechanical Industries.....	5,539	5,122	417
Transportation	1,406	1,286	120
Trade	3,042	2,626	416
Public Service	332	329	3
Professional Service	1,260	848	412
Domestic Service	2,478	943	1,535
Clerical Occupation	2,239	1,295	944

THE DEMAND OF CHARLESTON TRADE TERRITORY FOR FARM PRODUCTS

In considering the possibility of utilizing the local market for home grown products it is necessary not only to get an idea of present volume of consumption but also to consider the probable trend of consumption in the future. That is, should the present demand for produce be expected to remain constant over a period of years or should the producers anticipate an increase in demand? If there is to be an increase, is it likely to be cumulative and regular or will it be erratic? And within each

year is the demand fairly steady, or is there a distinct seasonal movement?

Since the demand of an area over a period of years depends largely on the number of consumers and their resources, this information can best be secured by analyzing the trends of the city of Charleston itself. Charleston capital has been largely responsible for the development of the natural resources in the area and the banking, distribution, and marketing for the community is centered about this city.

Bank Deposits in Charleston.—The total deposits of the banks in Charleston amounted to \$4,820,000 on June 1, 1903, and \$38,847,000 on March 31, 1924, an increase of \$34,027,000 or 80.50 per cent. The growth was cumulative until over-production of coal in 1922 made coal mining unprofitable. Naturally the effect of the general business depression of 1921 helped to curtail the growth in bank deposits. The Charleston Clearing House Association statements of April 16, 1924, showed that the clearings were 30.0 per cent less than clearings of the same week twelve months previous and the debits to individual accounts showed a corresponding decrease of 30.2 per cent.

TREND IN POPULATION, BANK DEPOSITS,
POSTAL RECEIPTS AND VALUE OF BUILDING PERMITS
CHARLESTON W. VA. 1900-1923

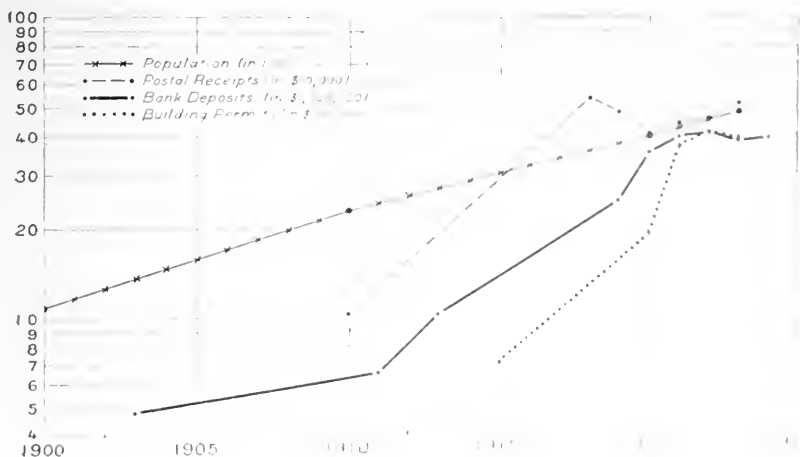


Figure 2.

Analysis of the bank clearings by months reveals the fact that the distribution of business in Charleston was fairly even throughout the year. The clearings of the minimum month of 1922 were 67 per cent of the maximum month and of the minimum month of 1923 were 72 per cent of the maximum month.

Figure 2 shows the trend in population, bank deposits, postal receipts, and value of building permits during the past twenty years.* The presence in the city of a large number of transient workmen on government contracts in 1918, and the increase in postal rates account for the abnormally high postal receipts of that year.

There was a steady increase in each of the four indices until the latter part of 1921. About this time the depression in general business which the east, south, and middle west experienced in the fall of 1920 and the spring of 1921, reached Charleston. It soon became evident that there was an over production of coal because of war expansion. As a result the average mine price of coal for the year ending June 30, 1921, was \$4.14 while it was but \$2.28 for 1922.†

The full effects of the depression were not reflected in the annual earnings of the mine employees as is shown in Figure 3. Even during the depression the mine laborer's annual income was almost equal to his income as of 1921 because his scale of wage was increased. Figure 2, brings out the fact that, even under adverse mining conditions, building operations, bank deposits, and postal receipts have held up remarkably well.

Trend of Employment.—Another factor to be taken into consideration in studying demand for produce is the employment of wage earners; that is, how steady is employment from year to year and from month to month, and what is the income of a local wage earner in a year? It is obvious that unless the income of a wage earner is sufficient to allow him to enjoy a fairly high standard of living his demand for food of high quality will be small, and a low standard of living tends to discourage the moving in of additional workers. Table I shows that there are fewer people employed in agriculture than in

*The assessed value of property in Charleston in 1904 was \$11,429,000 while in 1922 it was \$96,000,000.

†Annual Report Division of Mines State of West Virginia.

NUMBER OF MINERS, AVERAGE DAYS WORKED, WAGES RECEIVED FOR LOADING AND ANNUAL EARNINGS PER PICK MINER, CHARLESTON AREA

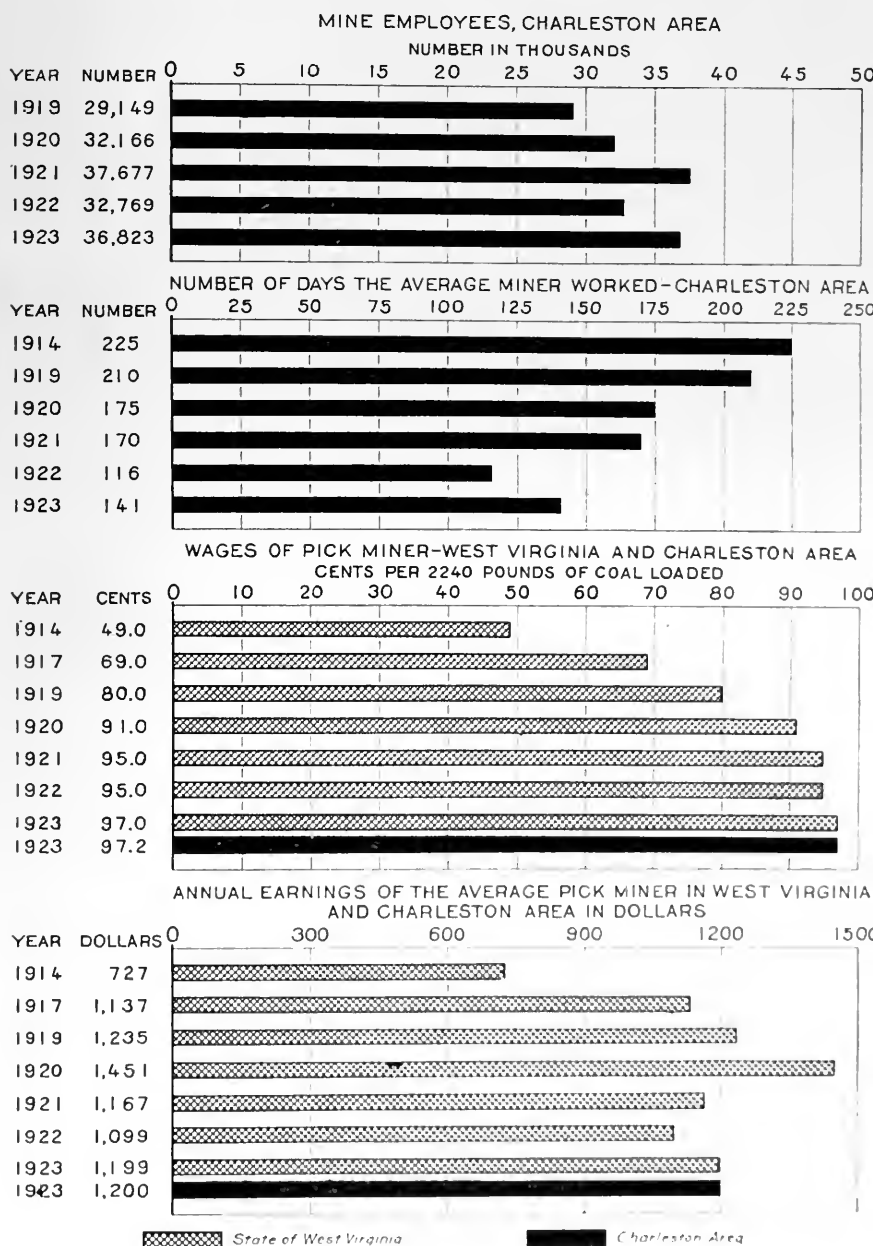


Figure 3.

mines and industrial work, but the demand of this class of consumer is small since the farmer very nearly supplies his own needs for food. Such demand as there is, however, is fairly constant even in periods of low prices for farm products, as has been the case within the past few years.

The demand of the mining class is of real importance and the income of this class depends largely upon the number of days the mines are in operation. (The income of many consumers other than miners is indirectly affected by this same variable.) The number of days the individual mines operate during the year fluctuates both from year to year (See Figure 3) and within the individual year. The heaviest production and consequently the most constant employment is during the fall and winter months, but at this time little if any local produce is on the market. Another cause for fluctuation in the miner's demand is that as a class they live on a day to day basis and according to local commissary keepers they are extra good buyers of food when earnings are high, but when their earnings are low they go to the other extreme. Figure 3 gives a fair picture of how the wage scale has offset the effect of the small number of working days so that the annual earnings has remained fairly stable. A comparison of the trend of the earn-

ANNUAL EARNINGS OF AVERAGE PICK MINER IN STATE OF WEST VIRGINIA AND INDEX OF FARM PRICES

1913-1923

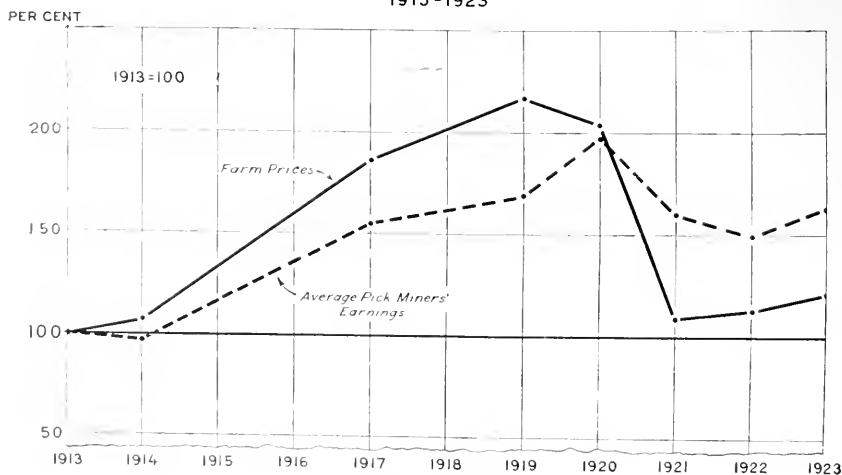


Figure 4.

ings of the average pick miner with the price of farm crops shows that the mine employee is in a bargaining position superior to that of the man who must exchange income from farm crops for wages from mining (See Figure 4).

The demand of the industrial class of wage earners may be said to be more constant both from year to year and from month to month than that of the mining class. There has been an appreciable increase both in the number of industrial wage earners and in their annual earnings from 1909 to 1919 as shown by Table V.

TABLE V.—NUMBER OF WAGE EARNERS AND INCOME PER WAGE EARNER FOR SELECTED MANUFACTURING INDUSTRIES, CHARLESTON, W. VA.

Year	1919	1914	1909
Number of Wage Earners.....	2,259	1,081	951
Income per Wage Earner—Dollars.....	1,113*	589	493

Since the last census of manufacture there has been a steady industrial growth especially about Charleston. Table IV shows a preponderance of craftsmen such as tool workers, mechanics, chemical workers, glass cutters, builders and the like in Charleston. Trade of this sort carry a wage scale of a dollar or more per hour. And, too, the wage earners engaged in lumbering, pulp wood manufacture and in industries of this type have a scale of wages which allows a fairly high standard of living.

Reviewing the data presented in the foregoing pages, we find that the Charleston Trade Territory has a population of approximately 400,000 people, made up largely of farmers, miners, industrial workers, and traders. Farmers as a class are numerically strongest, but purchase very little produce. The miners, industrial workers, and tradesmen buy practically all of their food and their scale of wages is high enough to allow them a relatively high standard of living.

*The buying power of the wage earners income in 1919 is not so much greater than his 1914 income as the figures indicate due to post-war values.

Consequently the demand for produce from these and other classes of laborers can be depended upon unless business conditions become abnormally adverse.

There has been a steady growth in population, resources, mining, and industrial development since 1900, but overproduction of coal has caused an unfavorable turn in business conditions of late and the situation will possibly cause a falling off in the rate of growth. This condition can hardly be expected to curtail the gross volume of demand for quality food; furthermore, other factors such as industrial activity, building, and lumbering will no doubt maintain the rate of increase in the gross demand of the area over a period of years.

The increase in the number of industrial wage earners and the small variation in seasonal employment have a tendency to make the urban demand more constant.

These factors would seem to warrant the assumption that this market will be one of increasing demand.

The Consumption and Distribution of Food Products

LIST OF COMMODITIES INCLUDED IN THE STUDY

The food commodities included in this study were limited to those which are being produced or which, from the standpoint of soil, climate, and season, might be produced within the thirteen counties. With proper care, in most cases, the quality of the local product is as high as or higher than the quality of the imported produce.

The following food commodities received especial attention in this study: potatoes, cabbage, onions, sweet potatoes, tomatoes, lettuce, mixed vegetables (including kale, asparagus, rhubarb, turnips, green beans, etc.,) cantaloupes, melons, apples, berries, grapes, meats, butter, cheese, eggs, poultry, dry beans, and milk. As may be observed from the list most of the commodities may be classed as perishable food products.

POINT OF SHIPMENT OF SELECTED
FOOD COMMODITIES
COMING INTO CHARLESTON - 1923

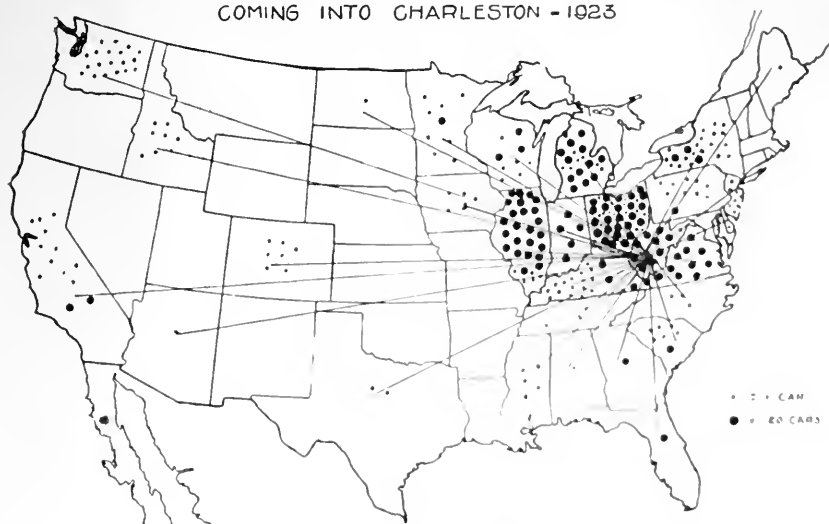


Figure 5.

CONSUMPTION

Table VI will show the quantities of each commodity received in the Charleston market during the year 1923.

This table shows the freight receipts on the Charleston market of each commodity in car-lots as well as in pounds. Receipts in less than car-lots, express, water, and by parcels post are expressed in pounds only. By deduction the portion redistributed to the trade territory, the portion consumed in Charleston and its suburbs may be determined.

It may be seen from this table that the major portion of the commodities considered came into the market in car-lot shipments. This was to be expected since Charleston is a large distributing center and is a considerable distance from the large producing areas of the country. On the other hand only two car loads of these commodities were shipped out of the city, leaving most of the outlying trade to be supplied by local or less-than car-lot shipments, by express, and by trucks.

TABLE VI.—RECORD OF RECEIPTS AND SHIPMENTS OUT OF SELECTED FOOD COMMODITIES IN CHARLESTON
(000 omitted in pounds)

TWELVE MONTHS ENDING DECEMBER 31, 1923.

Commodity	Freight in Car Loads (a)	Weight in Pounds (a)	Freight in Less Than Car-Loads (b)	Express (c)	Boats (d)	Parcel Post (e)	Pounds Exported (f)	Pounds Remaining in Charleston (f)
Potatoes	516	19,508	15	9	.....	.....	11,719	7,813
Cabbage	124	3,038	4	.....	.....	.....	1,673	1,369
Onions	65	1,788	62	.....	.....	.....	1,017	833
Sweet Potatoes	31	992	33	.....	.....	.....	410	615
Tomatoes	36	810	0	27	.....	.....	335	502
Lettuce	8	180	57	163	.....	.....	160	240
Mixed Vegetables	152	2,994	0	674	.....	.....	1,244	2,424
Melons and Cantaloupes	147	3,528	5	.....	.....	.....	1,060	2,473
Apples	276	8,142	1	42	180	.....	5,019	3,346
Berries and Grapes	54	1,080	5	54	.....	.....	398	741
Packing House Products	725	22,000	79	180	.....	.....	12,199	10,060
Butter	13	228	17	900	.....	.....	No estimate	No estimate
Cheese	14	336	15	9	.....	.....	No estimate	No estimate
Poultry (dressed)	0	0	0	60	.....	.....	No estimate	No estimate
Poultry (live)	0	0	0	251	.....	.....	No estimate	No estimate
Eggs	72	1,512	0	712	.....	269	No estimate	No estimate
Dried Beans	89	5,385	91	.....	.....	.....	No estimate	No estimate

(a) Actual record from Railway records.

(b) From records of less-than-car-load shipments for first and fifteenth of each month, yearly estimate.

(c) Yearly estimate based on actual express records for first week of each month. Express records obtained from Division officers in Washington, D. C.

(d) Actual records from wharf boat agent.

(e) Estimate of Superintendent of Mails, Charleston Post Office.

(f) The quantities of each commodity exported and remaining in Charleston was arrived at by obtaining estimates in percentage from wholesalers handling more than 85 per cent of these products on the Charleston market. Percentage of the receipts give the figures as shown under the heading "Pounds Exported" and "Pounds Remaining in Charleston."

Distributing Agencies

Included under the heading of distributing agencies are transportation, storage, and marketing.

TRANSPORTATION

In the discussion of transportation on page 7 the rail, water, and highway system serving the Charleston Trade Area was covered in some detail. Mention was not made of the fact that considerably more food stuff has been shipped into Charleston in the past than has been shipped out and the local short-haul tonnage has also been light. As a result, in the present schedule of freight rates, concessions have been made to the more distant areas which have a heavy annual tonnage. For example, the rate on potatoes from Chicago to Charleston, a 495 mile haul, is 34 cents per hundred in car lots, while the rate from Ronceverte, West Virginia, a 130 mile haul, is 32 cents per hundred. A comparison of rates on car-lot shipments originating within the territory with those of competitive producing areas is presented in Table VII.

TABLE VII.—FREIGHT RATES ON CAR-LOT SHIPMENTS OF SELECTED PERISHABLE COMMODITIES FROM SHIPPING POINT TO CHARLESTON.

Shipping Point	Mileage to Charleston	Rate per cwt.			
		Potatoes	Cabbage	Mixed Vegetables	Apples
Point Pleasant, W. Va.....	57	\$0.165	\$0.000	\$0.240	\$0.165
Ripley, W. Va.....	103	.315			
Ronceverte, W. Va.....	130	.320			
Madison, Wis.	625	.300			
Chicago, Ill.	495	.340			
Syracuse, N. Y.....	741	.340			
Norfolk, Va.	454		.440	.440	.340
Cincinnati, O.	211	.255		.365	
Inwood, W. Va.....	377				.435
Wenatchee, Wash.	2,701				1.500
Pittsburgh, Pa.	264	.285		.285	.285
Pulaski, Va.	295		.550		
Richmond, Va.	516		.405		
Gauley, W. Va.....	38	.130			.095
Cheboygan, Mich.	669	.435			

There are three ways open to the producer in the Charleston Area for lowering transportation costs to Charleston. First,

shipping associations may be used to consolidate less-than-carlot shipments into car-lots, also groups of producers using the same shipping station by specializing in one or more commodities may increase their volume of shipment sufficiently to obtain a commodity rate into their chief market. Second, water transportation can be utilized to a better advantage in some cases by producers located along the navigable streams. (See Table VIII). Third, farmers may deliver more of their produce to the home market over the highways.

TABLE VIII.—BOAT CHARGES FROM POINT PLEASANT AND ALONG THE KANAWHA INTO CHARLESTON.

Apples per Barrel.....	\$0.50	Calves per Head.....	\$1.50
Apples per Bushel.....	.10	Hogs per Head.....	1.00
Potatoes per Sack.....	.30	Chickens per Coop.....	1.00
Cattle per Head.....	4.00	Eggs per Case.....	.25

STORAGE

Public storage in Charleston is taken care of by a locally owned and operated plant which has a capacity of approximately 10,000 tons of perishable food. Space can be had by the public on either a cubic foot or a per unit basis at a rate which compares favorably with Cincinnati, Ohio, and Huntington, West Virginia, the nearest competitive plants.

The commodities stored in the heaviest volume are apples, eggs, and dairy products. The plant has not been filled to capacity since it was enlarged in 1922.

MARKETING

Wholesalers.—The major portion of the food supplies consumed by the 400,000 or more people living within the trade territory of Charleston, is distributed through established agencies located in this city. The wholesaling of fruits and vegetables is largely taken care of by five dealers, each of whom does an annual business of more than \$200,000.

There are, in addition to these, several distributors of general supplies who deal to a limited extent in the more staple commodities, and a few retailers who order produce direct from

Cincinnati or other distributing centers throughout the year. A car a week of mixed vegetables is billed to the freight agent and arrives early Friday morning from Cincinnati.

The wholesalers receive most of their supply in car-lots from the producing areas and from such distributing centers as Chicago, Pittsburgh, and Cincinnati. Approximately forty-five per cent of the Charleston gross receipts are consumed in the city and the balance is re-shipped by freight, express, or truck to retailers in the trade territory.

The wholesale distributing of meat is handled by the branches of six national packing plants, two regional packing plants, and the two local abattoirs. (The latter buy their livestock within the trade territory and from eastern Ohio.) Competition is keen between the several agencies for the city trade and for the trade of the Charleston Area. Approximately forty per cent of the receipts of the branch distributors, and all of the meat from the local abattoirs, remains in the city. The above wholesale meat distributors handle all of the cheese and a large part of the butter. Wisconsin cheese and creamery butter are shipped in by way of Louisville, Kentucky, and Columbus, Ohio. In 1923, 900,000 pounds of butter was shipped by express direct to the retailers and ice cream manufacturers.

Poultry and eggs are brought in through several channels. The wholesale meat dealers handle eggs throughout the year and dressed poultry during the holiday season. Since the Charleston trade prefers dressed poultry the retail meat dealers secure their supply from shipping points within fifty or sixty miles of the city or from eastern Ohio by express, and dress the poultry for their trade. A common complaint of the country poultry dealers shipping into Charleston is the wide fluctuation in the Charleston market from day to day and the uncertainty of demand. This may be partially explained by the fact that there is no established wholesale agency in Charleston specializing in poultry and eggs.

Retailers.—There were 232 licensed dealers of foodstuffs in Charleston in 1923, grouped as follows: 173 grocery, 32 fruit, and 27 meat. The group "grocery" included two chain store systems which together operated a total of fourteen units. One unit alone handled 1,560 customers on Saturday, April 12, 1923.

The preference of a part of the Charleston consumers for the "cash and carry" plan of buying is evidenced by the fact that one of the systems with national distribution increased its number of units from three in 1922 to eleven in 1923 by adopting this plan. The absence of a retail public market either of the curb or enclosed type is unusual for a city as large as Charleston.

How The Local Farmer Markets His Produce.—Much of the truck, poultry, and fruit originating within a radius of ten or fifteen miles of Charleston is delivered by the farmers to the retailer's place of business or peddled on the streets. The more distant farmers usually sell to the general merchant at the country store who in turn either hauls the assembled produce into a consuming center or ships it to a dealer.

It has been only within the last few years that garden truck has been produced locally on a commercial scale, and the desirability of grading is just beginning to be recognized. So it is not surprising that the wholesalers have paid little attention to the handling of local products. Since there is no ready channel for disposing of a temporary surplus the least indication of an oversupply of any commodity, for example beans, is sufficient excuse for a price cutting war between producers which usually results in the farmer getting little, if anything for his product.

As the hard surfaced road system is completed Charleston and the mining towns will become more accessible to producers in areas where the soil and farm organization are favorable for commercial production; this will make competition between producers within a radius of ten miles of Charleston and those farther out even more acute.

Turning to the marketing of livestock we find the usual channels; namely, the large cattlemen ship into the Pittsburgh, Jersey City, and Baltimore markets, while those with only a few head of cattle to sell patronize local buyers. Local shipping associations are making progress, especially in Jackson and Greenbrier counties.

The method of marketing the local dairy products depends largely on the distance the producer is located from a consuming center. Dairy men located in Kanawha County market their product almost entirely in the form of whole milk in Charleston.

The dairies in the vicinity of Point Pleasant ship whole milk into Charleston and Huntington, or ship cream to creameries in Ohio, while the dairymen in the vicinity of Roncève verte sell some whole milk in Charleston during the winter months, but depend chiefly on the demand of the ice cream factory at Lewisburg for their market.

Farmers' Marketing Association.—The stock of the Lewisburg Ice Cream Company located at Lewisburg, West Virginia, is held almost entirely by farmers. During its five years of successful operation it has provided its stockholders a steady market for their milk. There is also a Cooperative Cream Station at Point Pleasant.

One of the farmers' agencies for handling livestock is the Producers' Cooperative Shippers Association at Pittsburgh, which is patronized to advantage by the shippers of Mason and Jackson counties. This selling agency is available to the local shipping association in the Ohio River Area.

In the fruit and vegetable marketing field we find the recently organized West Virginia Potato Growers' Association, which markets the potatoes for groups of growers located in the several producing areas.

The poultry and egg producers have not taken advantage of the opportunity to establish a "local", affiliated with the Mountain State Poultry Producers' Association. This association serves as a marketing agency for a product of high quality.

There is room for additional farmers' marketing associations established on sound cooperative principles and directed by capable business administrators. Agencies of this sort can get results where the farmer as an individual is helpless.

Public Market Facilities in Charleston.—Public markets are provided by the municipalities in most cities as large as Charleston*. These markets vary a great deal as to purpose, facilities, and operation, but in general they fall into one of three classes, namely: First the Farmers' Market, which provides a place either in the open or under sheds for the farmers to meet with their customers, the wholesalers, retailers, hotel and cafe operators, and the housewives, and dispose of their

*In some cities public markets are owned and operated by private capital.

produce and return to the farm in time to do several hours work. The purpose of this type of market is primarily to provide an outlet for products grown by the local producer, and secondarily to make it possible for the consumer to obtain home grown produce when it is in season.

The second class of markets is the Enclosed Retail Market. Facilities for this type of market are more expensive since space must be provided for a large number of booths in the same building to be leased to professional retailers. This type of market is operated throughout the year. The interests of the consumer are the first consideration and the provision of an outlet for home grown farm products incidental.

The third class is a combination of the two types of markets. Where conditions favor its installation this type of market enjoys the advantage of both the Farmers' Market and the Enclosed Retail Market. The conditions to be met with are: A city with a population of about forty thousand or more; an appreciable volume of locally grown perishables; an available location which is accessible to the trade, and preferably, no existing competitive public market.*

The lack of a public market in Charleston has not been felt in the past because the volume of locally produced perishables has been comparatively small and the farmer has had little difficulty in disposing of his marketable surplus by peddling it to the retail trade, or to the housewives in the residential districts of the city. This condition, however, will not last much longer because a large number of the local farmers are beginning to raise truck and produce on a commercial scale. If commercial gardening is to succeed, it must have access to a broader market than the present channels offer. And, too, as the state highway system nears completion the volume of fruit and vegetables placed on the Charleston market will increase and the need of markets will be more serious. By encouraging the local producers to market in Charleston the consumers in the city will obtain access to a fresher, more wholesome supply of fruits and vegetables and some of the returns from the sale of

*The Farmers' Markets in Detroit, Michigan, may be cited as examples of the first class; the markets of Columbus, Ohio, and Indianapolis, Indiana, as examples of the second class; and the markets of Roanoke, Virginia, and Washington, D. C., as examples of the third class.

the produce will naturally be spent with the local merchants, thus the whole community will share in the benefits.



Typical Bluegrass Pasture in Greenbrier Area

With the establishment of proper marketing facilities in the city, Charleston should become the wholesale market for perishables produced all over its area. Some of the farmers would truck their produce in over the highways and dispose of it in wholesale quantities during the early morning hours. Their products would then be marketed over the city and in the mining towns through the established channels of distribution. Others could remain on the market and sell direct to the consumers.

Agriculture

The Ohio River Area comprises practically all of the northern part of the territory surveyed. The bottom lands are highly productive and extend in narrow strips, averaging about a mile in width along the Kanawha River from Charleston to Point Pleasant and along the Ohio River in both Mason and Jackson counties. There are also some small areas of bottom land along the creeks that empty into the Ohio and Kanawha rivers. The uplands extending back from the streams are mainly very broken and consist of narrow "hog back" ridges, and steep hillsides. These uplands are only fairly well suited to growing crops, but are better for pasture.

The Mountainous Area is rough and hilly, only the small areas of bottom land along the river and small streams are under cultivation. These bottom lands, especially near Charleston, are devoted to truck and field crops, while the uplands are in pasture.

The Greenbrier Area consists largely of a broad rolling plateau, extending throughout Greenbrier and Monroe counties, with an average elevation of 2,200 feet. General farming is followed, with cattle grazing as one of the principal enterprises. Bluegrass pastures cover a large part of the territory.

The mean annual temperature and rainfall does not vary widely in any of the three areas. The temperature is lowest in the Greenbrier Area where the altitude is highest. The rainfall is well distributed throughout the year, during the months of July and August there is normally sufficient rainfall to supply the needs for growing crops. The average length of the growing season in Greenbrier County at Lewisburg as shown in Table IX is twenty-five days shorter than at Point Pleasant and thirty-four days shorter than at Charleston. The short growing season in the Greenbrier Area has considerable influence on determining kind and variety of crops grown.

TABLE IX.—CLIMATOLOGICAL DATA FOR THE THREE AREAS.*

	Point Pleasant Ohio River Area (Elev. 553 ft.)	Charleston Area (Elev. 597 ft.)	Lewisburg Greenbrier Area (Elev. 2200 ft.)
Mean Rainfall	41.32 inches	51.26 inches	41.63 inches
Mean Temperature	55.3 degrees	57.6 degrees	51.3 degrees
Average Annual Snowfall.....	19.3 inches	20.5 inches	27.8 inches
Average date for Killing Frost in Spring.....	April 22	April 20	May 7
Average Date for Killing Frost in Fall.....	October 16	October 23	October 6
Length of Growing Season.....	178 days	187 days	153 days

*U. S. Department of Agriculture, Weather Bureau.

The principal crops are corn, oats, wheat, hay, vegetables and tobacco. Other farm products of importance are livestock, (chiefly cattle and sheep), dairying products, and poultry. The acreage devoted to the several crops in 1900-1923, is presented in Table X which follows:

TABLE X.—ACREAGE OF THE PRINCIPAL CROPS—CHARLESTON TRADE TERRITORY. 1900-1923.

Crops	1923	1920	1910	1900
	Acres	Acres	Acres	Acres
Cereals	306,927*	314,760	300,674	375,252
Corn	183,933*	176,461	211,699	222,633
Oats	50,590*	43,720	40,568	25,404
Wheat	69,404*	90,729	57,474	122,545
Other Crops				
Hay	198,335*	243,582	173,376	254,475
Tobacco	4,300*	4,764	7,513	1,862
Vegetables	16,000*	12,120	26,120	16,850
Berries	900**	819	779	297

There has been a forty to fifty per cent increase in dairy cattle since 1910 and nearly half of the increase has taken place since 1920, but, on the other hand, there are fewer beef cattle, hogs, and sheep than there were in 1900.

Within the past few years, especially since 1921, there has been a distinct drift from the production of field crops to market gardening, dairying, poultry raising, and orcharding; in other words to producing commodities which can be sold on the home market and are not dependent upon world prices. Table X shows at a glance the shift from corn and wheat to forage crops and hay. An even more significant change is the reduc-

*Estimated State Statistician.

**Estimated by authors.

tion in the total number of farms and farm operators. The average farm has grown in both total acreage and improved land per farm. With the exception of Greenbrier and Raleigh counties, there has also been an increase in the proportion of farms operated by owners, these two counties show a small increase amounting to about 1.5 per cent in tenant operated farms. No less than 85 per cent of the farms in the entire territory are operated by their owners. Native born white tenants operate practically all of the remaining 15 per cent either on a cash or share basis.

The shift in crops and farm layout has been accompanied by a distinct movement of population from the counties dependent upon agriculture to the counties engaged in mining and industry. The shift is accounted for by the demand of the mines and industries in these latter counties for labor and the relatively high wage scale, the opportunities for employment in Charleston—a growing city, the high scale of wages paid by the building trades and other types of non-agricultural employment, and the post-war depression of agriculture in general.

It is a common practice in the Mountainous Area for the farmer to depend upon employment in a nearby mine or manufacturing plant for most of his cash income. The farm provides chiefly a home and food for his own table. The advantage of this practice is obvious since the size of the average farm in this area affords less than forty acres of tillable land, its fertility is low and the farming practices of most of the farm operators are extremely backward. On the other hand wages paid for common labor and for team hire are both high.

In studying the cropping systems and farm layouts of the several areas the advantages of field crops and livestock were weighed against the advantages of farm enterprises and crops which could be sold on the local market for home consumption. All of the different phases of farming which seemingly had possibilities were taken into consideration. Out of this number the ones offering the best opportunities at the present time were selected and studied in detail, from the viewpoint of production and that of marketing.

The crops and enterprises offering the greatest inducements for expansion at the present time in selected localities are: dairying, potatoes and other truck crops, fruits and berries, and livestock.

DAIRYING

Milk Consumption.—The people of Charleston consumed 15,340,562 pounds of milk during the year 1923.* This figure represents the whole milk and the cream, expressed in terms of whole milk, which was placed on the market. The daily per capita consumption was .75 pounds, or a little less than three-fourths of a pint. This, however, does not include buttermilk, ice cream, or condensed milk of which there was a considerable quantity consumed.

Sixty-two per cent of the whole milk used in the city was pasteurized and sold through two distributing plants. The remaining 38 per cent was delivered by the producer to the consumer in the form of raw whole milk.

A city ordinance which went into effect July 1, 1924, requires that all producers who sell milk must obtain a permit from the city Health Department. The dairies are inspected by agents of the Health Department and the milk produced classified into three grades. Grade "A" must be milk produced in a dairy that scores 85 or more according to the United States Department of Agriculture Dairy Score Card. Grade "B" milk comes from dairies that score as low as 70, and grade "C" comes from dairies which score less than 70. Only Grade "A" milk may be sold as raw milk. Grade "B" must be pasteurized before being sold and grade "C" milk can not be sold under any circumstances.

Only 33 dairies selling milk in Charleston are producing grade "A" milk. These dairies have about 700 cows and are expected to produce from four to four and a half million pounds of milk annually. This is twenty to thirty per cent below the consumption of raw milk before this ordinance went into effect, and many former consumers of raw milk are having to use pasteurized milk.

There are two milk distributing plants in the city, one of which has a pasteurizing plant. More than half the milk used in Charleston is handled by one company. The new ordinance which prohibits the sale of raw milk below Grade "A" is ex-

*Actual delivery records from 44 farms with 835 cows, to Valley Bell Dairy Co., showed an average production per cow of 5150 pounds. This figure multiplied by 2008 cows for which producers had Public Health permits and added to the amount of milk and cream received from other sources outside the county gives the total consumption in Charleston.



A Dairy in Which Grade "A" Milk is Being Produced



Market Milk Cannot Be Produced in a Barn in This Condition Since
The Milk Ordinance Went Into Effect July 1, 1924

pected to increase the amount handled by these distributing companies, and lessen the amount sold direct to the consumer by the producer.

The price paid for milk by the consumer varies widely. There is no standard price; and some consumers pay 16 cents per quart, while others pay 20 cents for raw milk on the same day. Consumers also pay varying prices for pasteurized milk, ranging from 16 to 18 cents per quart. The production, distribution and consumption of milk in the thirteen counties as well as the source of Charleston's milk supply is shown in Fig 6.

From Figure 6 it may be seen that Kanawha County supplies about three-fifths of the whole milk consumed in the city, and that only a small per cent of it comes from outside the state.

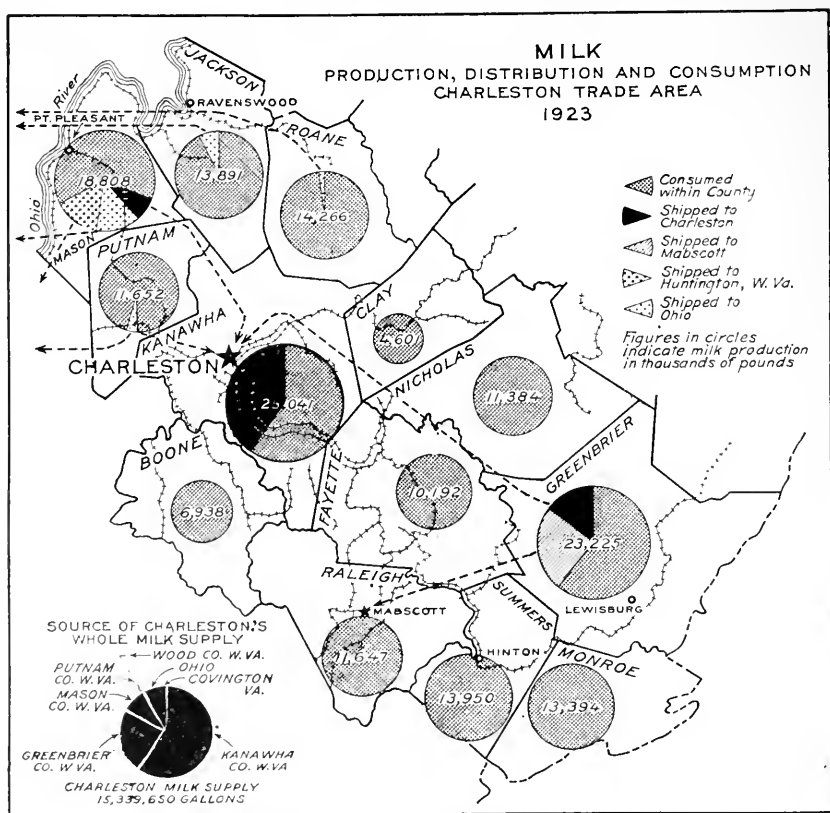


Figure 6.

Milk Production.—Milk production in Charleston's Trade Territory may be divided roughly into three producing sections. Dairymen located along the narrow river valleys in the immediate vicinity of Charleston have the advantage of nearness to a market which is to some extent shut off from the other commercial milk producing areas by fifty miles of mountainous country. This advantage of nearness to market, however, is somewhat offset by the scarcity of tillable land, which makes it necessary for dairymen to buy practically all of the grain and most of the hay which they feed. Dairymen in the Ohio River Valley and Greenbrier areas have an abundance of good pasture and can produce all of the roughage and most of the grain for their herds, but on the other hand the product must be shipped from twenty to a hundred miles to market.

There is room for considerable improvement in the feeding methods and practices on the average dairy farm in this territory. The common practices of feeding each cow the same ration regardless of the amount of milk produced is wasteful and expensive. A few dairymen are feeding on a milk production basis, and more should follow their example.

While feeding practices and production per cow are much the same in each of these areas, the cost of producing milk varies with the cost of feed and labor. In Kanawha County farm labor is scarce and wages high, and with most of the feed bought from outside the state, the cost of producing milk is much higher than in either the Ohio River Valley or Greenbrier Area. The feed cost of producing milk in Kanawha County, according to cow testing association records on four farms was \$1.65 per hundred pounds of milk and from similar records on eight farms in Mason County the cost was \$1.39 per hundred pounds. These records were all taken by the same man and should therefore be comparable. This difference of 26 cents in feed cost would be more than offset by the carrying charge of 33 cents per hundred pounds for milk from Point Pleasant in Mason County to Charleston, but the feed cost represents only a part of the increase in cost of production in Kanawha County over the other areas, so that the two are very nearly the same. The fact that dairying is more specialized in Kanawha County than in the other areas means that more hours of labor per cow must be performed and this labor must be had in competition

with the higher wages offered by the industries and mines of the section. On the other hand, in Mason and Greenbrier counties dairying is usually only a part of the general farm business and in winter months furnishes occupation for labor which would otherwise be idle. The dairy herd also utilizes surplus feed raised on the farm for which there is no profitable market.

Cow testing association records for Greenbrier County were not available, but costs of feed as given by several dairymen in this area were practically the same as for Mason County.

The average milk production per cow, in dairies producing whole milk for sale, in each of these areas is approximately the same. The average annual milk production on eight dairy farms in Mason County according to cow testing association records was 5,724 pounds. In Kanawha County the average milk production per cow on farms selling whole milk in Charleston was 5,150 pounds, and in Greenbrier County the average annual production per cow was 5,247 pounds (from actual records of milk produced by 215 cows kept by ten dairymen). This production of from 5,000 to 6,000 pounds compares very favorably with the average for other dairy sections such as Blair County, Pennsylvania, where it was 5,708 pounds.*

The production in these dairies, however, is much above the average production for all cows in the territory. According to the United States census for 1919, the average was around 3,000 pounds, in other words, the dairies producing whole milk for sale have nearly doubled the average production by better feeding practices and selection of high producing cows. A further increase can be made by these dairies, as well as by farmers keeping only a few cows, if more attention is paid to feeding balanced rations and the selection of high producing cows.

In addition to the dairymen in these counties who market whole milk, there is a large number of farmers who keep a small number of cows as a sideline to their regular farm business, marketing their milk in the form of cream. In general, feeding practices are poorer and milk production lower on these farms than in commercial dairies, nevertheless idle labor and surplus feeds are utilized to advantage. In Jackson, Roane, Putnam, and Mason counties cream stations have been estab-

*Pennsylvania Agricultural Experiment Station Bulletin No. 134.

lished by creameries in Ohio. These stations have stimulated the growth of dairying in each of these communities by furnishing a convenient market for this otherwise surplus labor and feed. Granting that price of cream and management of the stations remain satisfactory, a few cows for the isolated valley farmer should be profitable and a good agricultural development. Encouragement should be given to the small farmer to keep a few cows under such conditions.

Marketing.—The volume of milk going to the different markets from each of the counties is shown in Figure 6. Only five of the counties ship milk outside of their boundaries. The commercial milk produced in Kanawha County was consumed in Charleston. In the Greenbrier section, practically all of the milk and cream produced for market passes through the hands of the Lewisburg Ice Cream Company. This company shipped out 5,807,000 pounds of milk to its branch plant at Mabsco in Raleigh County last year, and 3,358,000 pounds to Charleston. In Mason County the dairymen ship their whole milk to dealers in Huntington and Charleston. In addition to this the cream from 4,451,000 pounds of milk was shipped to creameries in Ohio, from Mason, Jackson, Putnam, and Roane Counties.

In 1923 the price paid for milk by milk companies in Huntington, was \$3.50 per hundred pounds, from December, 1923, to March, 1924, inclusive, and \$2.50 to \$3.00 per hundred pounds from April to November inclusive. The average net price for the year 1923, received by three dairymen in Mason County, for whole milk was \$2.63 and \$3.15 per hundred pounds, depending on the distance from Huntington. In Greenbrier County the price paid by the Lewisburg Ice Cream Company was \$2.90 per hundred pounds throughout the year. The average price paid for butter fat by the Mason County Produce Company from December to March was 47 cents per pound, which is equivalent to \$1.88 per hundred pounds for 4 per cent milk.

The price of milk to the producer in Kanawha County was a variable quantity during 1923. From the best data available, however, producers selling to Charleston distributing plants received from \$3.00 to \$3.70 per hundred pounds for milk delivered to the plant.

Beginning in May, 1924, the distributing plants started

buying on a butter fat basis paying \$3.00 per hundred pounds for 3 per cent milk increasing \$1.00 per hundred pounds for each per cent increase in butter fat test. For milk below 3 per cent the price paid is at the rate of 75 cents per hundred pounds for each per cent of butter fat test.

The trend of dairying in Charleston's Trade Territory for the past five years has been upward. Since 1920 the increase in number of milk cows has been as follows:

January 1920	57,492 cows.	Fourteenth United States Census.
January 1921	57,460 cows.	Federal Statistician's Estimate.
January 1922	59,085 cows.	
January 1923	60,805 cows.	
January 1924	60,280 cows.	

The decrease between 1923-1924 is more than offset by the increase of 2,788 cows over the entire period.

In the Greenbrier and Ohio River area dairying on a commercial scale has been increasing much faster than the above figures of total milk cows for the territory would indicate. Five years ago there were only a few dairies in Mason County, and there was practically no shipment of whole milk out of the county. No cream was shipped out of Jackson and Roane counties. In Greenbrier County the Lewisburg Ice Cream Company started five years ago with only seven dairymen to supply it with milk. It now has seventy-five dairymen selling milk and cream and the number is increasing. Dairying in Kanawha County was, of course, well developed five years ago, but it has continued to expand with the growth of the demand of Charleston for whole milk. The rapid growth in population in both Charleston and Huntington has caused a constantly increasing demand for milk. The price of milk has consequently remained high even with the increase in local production.

The large increase in milk production in Greenbrier and Ohio River areas has been in line with the general increase in dairying throughout the United States. According to the Agricultural Outlook for 1924, published by the United States Department of Agriculture, there has been an increase of nearly 14 per cent in the production of dairy products in the United States from 1919 to 1922. This increased volume of milk has

been absorbed by an increase of 14 per cent in consumption. The conditions surrounding the production and distribution of milk, however, are of such a nature that supply and demand are not easily or quickly adjustable.

Dairying has been increasing during the last few years, because of the relatively high price of milk, and the relatively low prices of hogs and beef cattle. While the condition of supply and demand in the entire country do not apply wholly to Charleston because of its isolation from large dairy sections, commercial dairymen should look carefully to their individual market before making further expansion of their business. Emphasis should be placed upon the increase in the milk production per cow and on more economical methods of feeding rather than upon increasing the number of cows.

A reduction in the price of milk or cream would mean that all producers would receive less profit and the less efficient producers might have to quit the business. Milk is now coming into Charleston from Mason and Greenbrier counties, and is being sold in competition with milk produced in Kanawha County. Any further increase in production in Mason and Greenbrier counties will probably mean an increase in milk shipment to Charleston. The shipping cost is largely offset by the difference in the cost of production and in case of an over production the less efficient of those doing a highly specialized dairy business, as in Kanawha County, will be forced to quit before those who make it a part of their regular farm business, as in Mason County. The Charleston milk ordinance referred to above, however, provides a good opportunity for some Kanawha dairymen who want to produce Grade "A" milk. It will be difficult for outside competitors to put such milk on the market and so long as the demand continues for raw whole milk at a good price there will be a splendid opportunity for a limited number of good dairymen in this business.

Many producers in Kanawha County now selling raw milk will be forced to sell it to the pasteurizing plant which will throw them in direct competition with Mason and Greenbrier producers and as production increases in these counties more and more will find its way into the Charleston market.

The probability of Ohio shipping milk to Charleston is not great, although there is a direct railroad connection from New-

ark, Ohio, the cost of transportation is 88 cents per hundred pounds, and the age of the milk before reaching the consumer places the producer at a further disadvantage.

There is, however, a possibility for the expansion of the dairy industry in producing milk for the Ice Cream Plants in Charleston, Huntington, and Lewisburg. Charleston shipped in from outside the state 83,000 gallons of ten per cent cream besides large quantities of milk powder and butter for ice cream manufacture. This cream represents 1,801,700 pounds of milk or the production of 327 cows producing the same amount per cow as the present average for the dairies in this section.

Huntington and Lewisburg creameries also claim that they can handle a considerable increase in milk production.

The important factor to consider in the expansion of the dairy industry in this section is that while an increased supply can be handled by the ice cream companies and the per capita consumption may be increased appreciably, it is most likely to be accompanied or preceded by a decrease in the price of milk which means a corresponding decrease in margin of profits.

POTATOES

Production and Consumption.—Potato production in the Charleston Trade Territory is not a highly developed industry. Most of the farmers raise enough for their home use and some have potatoes to sell in the small mining towns. A few areas also produce potatoes in sufficient volume to be shipped out in car lots.

The acreage yield per acre and total production of potatoes since 1899 is shown in Table XI. The acreage has remained practically constant during the last four years and fluctuation in volume of potatoes produced has been due largely to changes in the yield per acre. In 1923 the yield per acre was 36 bushels more than in 1922 and the volume of potatoes produced was 500,000 bushels larger. Local producers therefore came nearer to supplying the local demand in this peak potato year than usual.

TABLE XI.—ACREAGE AND PRODUCTION OF POTATOES IN CHARLESTON TRADE TERRITORY. 1899-1923.*

Year	Acres	Yield per Acre	Total Production
1899	6,847	72	490,947
1909	11,258	105	1,185,590
1919	8,020	86	692,694
1920**	12,313	116	1,434,252
1921	12,577	81	1,037,444
1922	12,857	80	1,032,876
1923	12,839	116	1,495,284

In 1923 the volume of potatoes produced in this territory was equal to 3.6 bushels per capita. This is the same as the per capita production for the United States for that year. Yet in addition to this local production Charleston alone received 516 car lots of potatoes, as well as small quantities in less than carlots in and by express. Several carloads came into the smaller distributing centers, such as Hinton and Ravenswood, and direct to local markets in the coal fields and small towns. When this is added to the local production it would allow a per capita consumption of more than four bushels. This per capita consumption of potatoes, so much higher than for the United States, may be attributed in a large measure to the high percentage of miners, lumbermen, and industrial workers.

The points of origin of the potatoes that were shipped into Charleston and the freight costs of shipping them are shown in Table XII.

TABLE XII.—RECEIPTS AND CARRYING CHARGES OF POTATOES BY POINT OF ORIGIN OF SHIPMENT.

Points of Origin of Shipments	Number of Cars	Total Weight in Pounds (000) omitted	Carrying Charges	Points of Origin of Shipments	Number of Cars	Total Weight in Pounds (000) omitted	Carrying Charges
Michigan	186	7,068	\$30,745	Kentucky	9	342	\$ 1,932
Ohio	109	4,142	10,562	Idaho	2	304	1,869
Virginia	67	2,516	10,820	New Jersey	2	266	1,235
Wisconsin	49	1,862	5,186	Other States	13	491	2,207
Minnesota	27	1,026	4,360	Miscellaneous ¹		24	255
Illinois	12	456	1,550	L. C. L. and Express			
				West Virginia	29	1,102	2,823
				Total	516	19,632	73,515

*1899-1919 United States Census, 1920-23 State Statistician for West Virginia

**This increase between 1919 and 1920 is due largely to a different basis of classification. The census enumeration did not count anything less than one-half acre while the state statistician counts all acreage in potatoes.

As may be seen from Table XII Charleston draws its supply of potatoes from sixteen states besides West Virginia. Michigan, with 186 cars, furnishes more potatoes on this market than any other state, Ohio coming second with 109 cars. A few early out-of-season potatoes are received from Florida by express.

Potatoes produced in this territory for shipment in carlots are largely of some early variety, such as Irish Cobbler or Early Ohio, which come on the market during July, August, and the early part of September. The monthly shipments of potatoes into Charleston are shown in Figure 7.

During July and August the local territory supplied only seven carloads and Ohio, Virginia, and Kentucky supplied thirty-three carloads. This indicates that Charleston is a potential market for thirty odd additional carloads of locally produced early potatoes.

The late crop of potatoes in this territory comes onto the market principally in September and October. Only a small portion of Charleston's supply comes from the local areas during these two months. Some late potatoes are brought in by nearby farmers, but only sixteen out of a total of eighty-eight carloads shipped into Charleston came from West Virginia. Local production could be increased by seventy-two carloads and still not over supply the local demands during these two months.

CARLOT RECEIPTS OF POTATOES IN CHARLESTON
AND THEIR ORIGIN, 1923

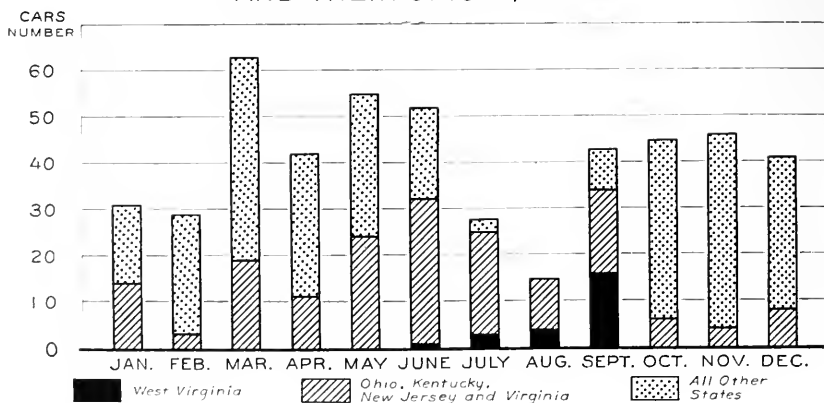


Figure 7.

The replacement by local production of potatoes shipped in during the other months of the year would require considerable expense for storage and there would be some loss from spoiling of potatoes. Since the market for early potatoes and late potatoes at harvest time can take care of considerable increase in production, the advisability of storing potatoes has not been considered and each farmer would have to decide this question for himself.

Local producers have some advantage over outside competitors in the matter of freight rates, but not as much as difference in mileage haul might indicate. As an illustration of the difference in shipping costs, carlot freight rates from competing sections into Charleston are given in Table XIII.

TABLE XIII.—FREIGHT RATES IN CENTS ON POTATOES PER 100 POUNDS IN CARLOTS.

Receiving Points	Shipping Points								
	Point Pleasant	Ripley	Ronceverte	Gauley	Madison Wis.	Chicago	Cincinnati	Cheboygan Mich.	Syracuse N. Y.
Charleston	16 ½	31 ½	32	13	51	34	25 ½	43 ½	34
Pittsburg	26 ½	38							

The small advantage which local producers have over producers in New York, Michigan, or Wisconsin could easily be offset by better soil, cheaper labor, or production on a larger scale in those areas. In order to compete for the Charleston market local producers must either raise potatoes at practically the same cost as competing areas sell them on an earlier market or produce a higher quality of potatoes. Those producers along the Ohio River, below Point Pleasant in Mason and Jackson counties, however, may have the opportunity of reducing the cost of transportation to Charleston by the use of trucks when the proposed hard surface roads are completed.

There is also the possibility of local areas providing potatoes in sufficient volume to obtain a commodity rate to Charleston and other towns which would lessen the cost of transportation and facilitate the adjustment of local production to local consumption. In fact, the reason why distant producing areas now have such cheap rates into Charleston is because of the large volume that they are shipping. The cost of shipping less than carlots from a distance of fifty and sixty miles is

greater than the cost of shipping in carlots from Wisconsin and New York. The only way of securing these reduced rates is through increased production in a community and through organization so that carlots can be loaded.

The production of potatoes in the Greenbrier Area and in the Ohio River Area fits in very well with the present cropping system. Farmers on good potato soil in either area can grow a few acres of potatoes in place of corn at only a small additional expense. Practically the only conflict in labor demand due to such a replacement would come during hay harvest, when most farmers have to secure extra labor for picking up and hauling the potatoes. The average cost per acre of this extra labor as estimated by the farmers was \$8.15 per acre. The total number of hours of labor required to harvest an acre of potatoes as reported in West Virginia Experiment Station Bulletin No. 187 would, at 25 cents an hour, amount to only \$13.25. Total extra costs per acre of producing potatoes rather than corn for extra labor at harvest, spray materials, fertilizer, and seed would be as follows:

Extra labor in harvest	\$ 8.15
Spray materials, 4 sprayings @ 75c.....	3.00
Extra fertilizer	8.43
Seed 12 bushels @ \$1.50.....	18.00
Total	<u>\$ 37.58</u>

The average volume per acre in 1923 of the potatoes, corn and wheat produced by farmers in the "Potato Ring" near Graham Station in Mason County as determined by the farm survey was as follows:

Potatoes 1 1/2 Bushels of Firsts @ \$1.35	
32 Bushels of Seconds @ .74.....	\$ 215.38
Corn 50 Bushels @ 86c.....	43.00
Wheat 18 Bushels @ \$1.05.....	18.90

With an extra cost of \$37.58 per acre the increased returns from growing an acre of potatoes rather than an acre of corn on the farms surveyed in Mason County was \$172.38. Both the average price and the yield of potatoes, however, on these farms were high in 1923. The question then arises how low could these prices go and still leave potatoes a good substitute for corn on a small acreage? With corn and potato yields, and the price of corn, the same as in 1923, potatoes could drop in price to 36 cents per bushel and still be as profitable as corn,

or if the yield of potatoes decreased to 100 bushel per acre, the price could decline to 63 cents per bushel and still be as profitable as corn.

The price received for early potatoes seldom goes below those figures, and most farmers on good potato soil can replace some of their corn with early potatoes at a profit.

The cost of producing potatoes can be reduced by farmers by forming what are called "potato rings," and purchasing their sprayers, graders, and other special potato machinery and supplies co-operatively. This plan was followed by two groups in this territory in 1923, and other groups of farmers are following this practice in the production of their 1924 crop of potatoes.

Marketing.—Of the 516 carloads of potatoes which were handled on the market last year, West Virginia supplied 29, but only nine of them came from the territory included in this study. Mason County farmers, however, shipped thirty-eight additional cars into the Pittsburgh market and farmers in the Greenbrier Area shipped ten carloads into the coal fields. Figure 8 shows the relation of the potatoes shipped in carlots out of the locality where produced to the receipts of potatoes by rail on the Charleston market.

Mason and Jackson county growers favor the Pittsburgh market because of the ease of selling in open market and because seconds are absorbed much more readily. They received an average price of \$1.35 per bushel for firsts and 74 cents for

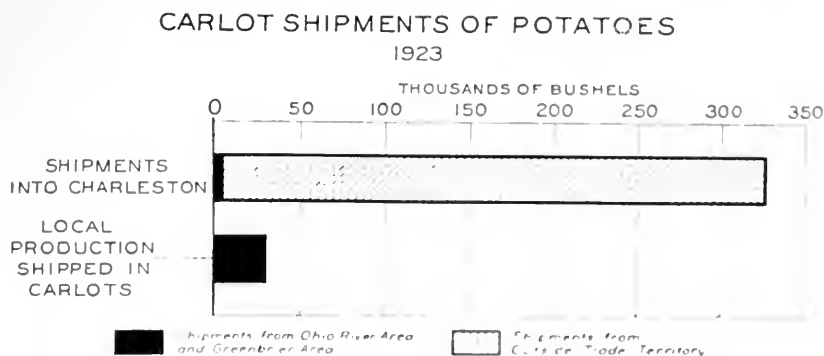


Figure 8.

seconds, while Summers County potatoes that were sold on the Charleston market netted the producer an average of \$1.47 per bushel. These potatoes were not all sold at the same time, and therefore cannot be taken as the relative prices on the two markets. Potatoes coming onto the Charleston market usually pass through the hands of wholesale jobbers which results in a higher freight and handling charge than on potatoes sold on an open market such as Pittsburgh. The Charleston market may therefore be expected to pay a higher price than the Pittsburgh market for the same grade of potatoes.

Most of the potatoes shipped to Charleston in carlots from its trade territory were produced by farmers belonging to "Potato Rings." The members of these "Potato Rings" have organized the "West Virginia Potato Growers' Association" have handle their 1924 crop of potatoes. This organization should be able to standardize the grade and quality of its potatoes, make contracts with buyers as to a definite time of delivery, and handle a sufficient quality to keep in contact with a number of wholesalers. At present, wholesalers in Charleston object to buying locally grown potatoes because purchases in small lots from individual producers are expensive to make, the time of delivery is uncertain, and the grade and quality are not uniform. An organization, therefore, which can remove these objections will facilitate the movement of locally grown potatoes to a local market such as Charleston. There can in fact



A "Potato Ring" Field of Potatoes

be very little adjustment of local production to local consumption as long as small shipments are made by individual producers for the majority of such shipments will move onto the open market. In order to switch this movement to smaller markets some marketing organization must handle the product.

The seasonal and yearly trend of jobbers potato prices on the Pittsburgh market is shown in Figure 9.

The four year average (1920-23) jobbing price of potatoes on the Pittsburgh market, during the months when most of the early potatoes are sold, is \$3.59 per hundred pounds for July and \$2.75 for August. In 1923 potato prices were considerably above this four year average price, and in 1922 they were correspondingly below the average, being \$2.20 in July and \$1.44 in August. The range in potato prices for August during the last four years on this market was from \$1.44 in 1922 to \$3.41 in 1921. Neither high nor low prices continue for a very long time under normal conditions, and farmers should plan their acreage of potatoes on the basis of average returns over a period of years.

Farmers in this territory cannot expect prices or yields to average as high as they did in 1923, yet farmers on good potato soil can depend on the average net returns from early potatoes being higher than from the same acreage of corn.

MONTHLY AVERAGE JOBBING PRICE OF POTATOES
PER 100 POUNDS AT PITTSBURGH

1920-1923

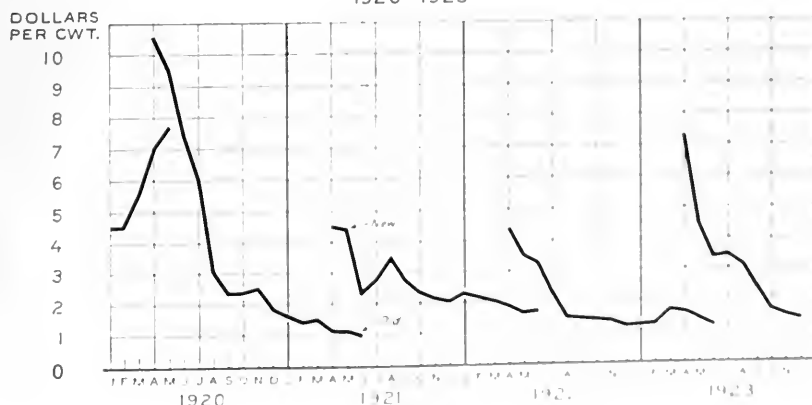


Figure 9.

TRUCK CROPS

Up to the present time market gardening has made little headway in the Charleston Area.* Home gardens, however, are common and the sale of the surplus is responsible for the major portion of the locally produced vegetables sold on the home market during the growing season. The quality of these vegetables is generally as good as that of the imported supply and the offerings of the more experienced local gardeners command a premium. A total of 464 carloads of vegetables, watermelons, and cantaloupes came into the market in 1923, of which 19 carloads came from the Charleston Area. It is estimated that about the equivalent of 100 cars of vegetables is delivered on the market by truck and wagons. The inadequacy of the local supply in 1923 is shown in Figure 10.

CARLOT RECEIPTS OF GREEN VEGETABLES, WATERMELONS
AND CANTALOUPE—CHARLESTON MARKET, 1923

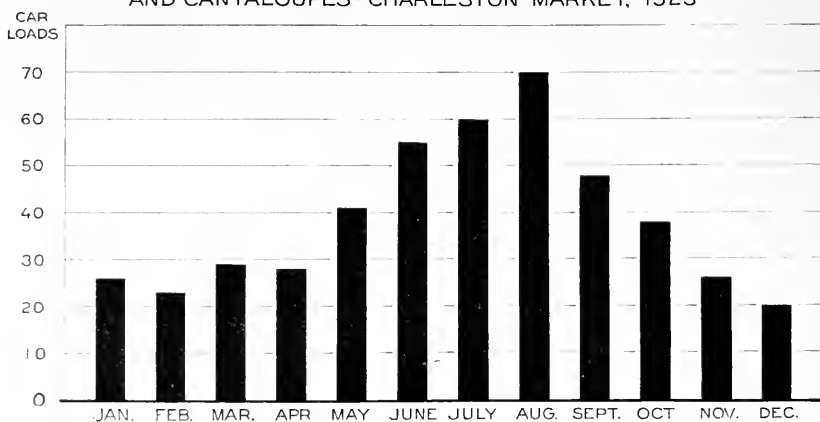


Figure 10.

The local producer can expect to compete in the production of only that portion of the shipped-in supply that arrives during the harvest season of local truck crops. In the case of some commodities some competitive areas have the advantage of better soil, cheaper labor, or quantity production, which more than offset the advantage local producers have in nearness to market. Increased freight rates, improved highways, and a

*Melons are produced to some extent as a cash crop in the Ohio River Area and potatoes rather generally. Potatoes are taken up separately on page 40.

larger market in Charleston, however, give the local producer a better opportunity for profitable sale of truck crops than he had a few years ago, and a part of this imported supply can now be replaced by local production with profit to the producer and at the same time give the consumer a supply of fresher vegetables.

Truck growers in this territory depend almost entirely upon local markets for the sale of their products. A few carloads of watermelons and cantaloupes were shipped out of the territory in 1923, but at the same time there was a larger number of carloads shipped into Charleston from outside territory during this same period. Green beans and tomatoes were the only locally grown vegetables which showed a tendency to glut the market but the oversupply lasted only a short time during the peak of the local marketing season.

A brief survey of the Ohio River bottom land showed clearly that the small production of truck crops is not due to the lack of suitable land within the area. Poor roads and distance to Charleston have been the chief limiting factors in truck crop production in this territory. Since 1919 the acreage devoted to truck crops has shown some increase. The advantages for the local producer are his nearness to market, the freshness of his produce when it reaches market and the preference of some consumers for produce brought directly from the farm.

Watermelons and Cantaloupes.—The principal acreage of watermelons and cantaloupes lies along the Ohio River a short distance above Point Pleasant. The salable production on this acreage in 1923 amounted to about a hundred carloads of watermelons and twenty carloads of cantaloupes. Of the melons loaded, nine carloads of the watermelons and ten carloads of cantaloupes were shipped into the Charleston market between August 15 and September 15. The balance went to Huntington, Clarksburg, Pittsburgh and to nearby consuming centers

The Charleston market received a total of 147 carloads in 1923 from California, Georgia, Ohio, Kentucky, South Carolina, Virginia, Arizona, Colorado, Minnesota, and West Virginia. Of this number about forty cars were received during the period the local product was on the market. Thus the city

of Charleston alone offered a market during the local season for more than twice the volume of locally produced melons received in 1923, provided of course that the price and grade of the home product can compete with the shipped-in melons. The principal objections of the Charleston dealers to local melons are; the lack of uniformity in size and type of melons loaded in the same car and the fact that the local product, especially the cantaloupes, do not "cut sweet" in years of abnormally heavy rainfalls.

Producers can remedy the first objection by giving more attention to the grading of their shipments, but the second objection cannot well be overcome. On account of this risk in addition to other causes of crop failure, farmers should not place too much dependence upon melons as a source of income but may grow this crop as a part of their general farming system.

Tomatoes.—Tomatoes are grown generally throughout the area for home consumption and to some extent as a cash crop in parts of Mason, Jackson, and Summers counties. The production in Summers County is small and is marketed in nearby towns or in the coal fields. The farmers in Jackson County plan their production to supply the needs of a local canning plant. A part of the Mason County crop is shipped to Pittsburgh but the major portion of it is marketed in Charleston. This supply normally begins moving about July 15 along with the Kanawha County crop and does not disappear till about the first of October. Charleston received thirteen carloads of tomatoes in June, 1923, and only five carloads in the remaining months of the year. Local production, therefore, supplies the Charleston market during the local season. In years of good season there is usually an oversupply of tomatoes on the market at the latter part of July. The price is low during this period. For better prices, then, production should be adjusted to prevent this oversupply. This may be done by some of the growers producing earlier and later varieties and staying off of the market in periods of oversupply. Out of season tomatoes might with profit be produced in green houses for the winter market.

Cabbage.—The soil along the rivers in Mason and Jackson counties is well adapted to the production of cabbage. The early crop is usually ready for market by the last of June and the season lasts through most of July. The late crop comes on the latter part of August and lasts till frost.

Charleston received 124 carloads of cabbage in 1923 of which one car only was produced within its trade territory. The receipts during the season when local early cabbage was on the market were ten carloads in June and six carloads in July. At the time local late cabbage might have been on the market, eleven carloads in September and twenty-two in October came into Charleston from outside the state. Charleston then offers a potential market for forty-nine additional carloads of locally produced cabbage. Without winter storage cabbage was being sold by wholesalers during this period, at from $2\frac{1}{4}$ to $3\frac{1}{2}$ cents per pound. Farmers who are considering the production of cabbage can depend upon Charleston as a market for a considerable quantity of this commodity.

Onions.—In this territory green onions are grown generally for home consumption and the surplus along with other truck crops is placed on the market. There has been a very small acreage, however, devoted to the growing of dry onions as a cash crop. The small quantity that is produced is marketed from the latter part of August until frost.

Charleston received a total of twenty-seven carloads of onions from July to October, 1923, inclusive and local wholesalers were receiving from 3 to $4\frac{1}{2}$ cents per pound for them.

Lettuce.—Only two farmers near Charleston attempt to grow head lettuce for market. These men use cold frames and report it as having been a profitable enterprise. The Charleston market received in 1923 eight carloads of lettuce (billed as such), and considerable quantities in the 150 cars billed as mixed vegetables, besides 163,000 pounds shipped by express. The possibility of producing lettuce both in cold frames and under glass for the local market deserves special consideration by men interested in trucking.

Other Vegetables.—Sweet corn, green peas, kale, spinach, and radishes are produced in small quantities, and green beans in larger quantities.

There is ample room for expansion in truck gardening for

the Charleston market. And farmers who are temperamentally adapted to such work and can obtain suitable soil might well consider this type of farming.

FRUIT

Apples, cherries, plums, peaches, and pears grow well in West Virginia. In fact most of the farms in the area studied have a small orchard or at least a few apple trees to provide fruit for the farm family. As a rule these orchards are poorly kept and the fruit is of inferior quality. The surplus over the farm family's needs is sold in the nearby towns.

The commercial apple orchards are found along the Ohio River and in the Greenbrier Area. These orchards which vary in size from 300 to 15,000 trees, are sprayed and given fairly good care. The apples from these orchards are of good quality and are shipped into the local consuming centers to be sold in competition with apples from Virginia and the West.

Out of a total of fifty cars of locally grown apples that were shipped in 1923 twenty-nine cars went to Charleston and the balance to Huntington and the coal fields. These twenty-nine cars represent only about 22 per cent of Charleston's carlot receipts during September and October of 1923. Thus it is seen that demand is not the limiting factor when considering further expansion. The home grown apples, however, compete with only a limited grade of fruit coming on the market. The greater part of them are sold in bulk at the car door.

The wholesalers do not care to handle the local apples because they are not usually uniform in grade or pack, are of uncertain keeping qualities, and cannot depend on delivery at a given time. They attribute the inferior keeping qualities to the fact that the trees are not properly sprayed and pruned and that the apples are not wrapped in oiled paper when boxed. If local orchardists can remove these objections there is a chance for them to supply the potential market of 276 carloads in addition to what is already being sold.

Producers in a few localities in West Virginia are attempting to improve the marketing of their crops by the organization of a Producers' Marketing Association. This association is

standardizing the grade and pack of their apples and selling them under the trade name of "Johnny Apple Seed" Brand. It is also facilitating the movement of local apples into Charleston and other local markets by establishing channels through which wholesalers can obtain a dependable supply. By following these practices the association should be able to enlarge the market for local apples. The production of apples, however, is a specialized business and the success of the enterprise even on land well adapted to orcharding, depends in a large degree upon the experience and ability of the manager.

Berries and Grapes.—The demand of Charleston for strawberries is very nearly supplied during the local harvest season from the Kanawha County Farms. Jackson and Mason counties produce a small surplus, a small part of which is sold in Charleston, the others going to Huntington and nearby towns. Summers County markets a few berries in Hinton and the coal fields.

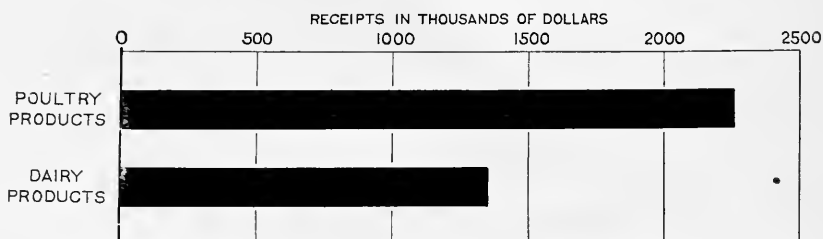
The production of grapes has made little progress in this area. Such as are grown are consumed at home or marketed in nearby towns. This scarcity of local production is due neither to suitable soils and climate nor to market demands in Charleston. In 1923 Charleston received twenty-seven carloads of grapes during September and October from outside the state.

There appears to be excellent opportunities for farmers in the production of grapes for the Charleston market.

POULTRY

Poultry is one of the most important sources of income for farmers throughout the thirteen counties included in this survey. The value of poultry shipments from the Greenbrier Area is practically equal to the shipment of cattle, and in the Ohio River Area it is a close second to that of cattle. A comparison of the total value of dairy and poultry products sold off the farms in this territory during 1919 as given by the United States census is shown in Figure 11. Receipts from poultry were a much more important source of income in that year than were dairy products. These poultry products are produced largely on farms as a sideline to the regular farm business. Poultry, in fact, forms a means of utilizing feeds that would otherwise be wasted on the many farms.

RECEIPTS FROM DAIRY AND POULTRY PRODUCTS

(Census Data 1919)**Figure 11.**

There are a few specialized poultry farms scattered throughout the territory especially in the Greenbrier and Ohio River areas. The profitable production of poultry and eggs requires much more skill and ability than is needed on the general farm for during a period of over production and low prices, the specialized poultryman has to take a loss on his entire business whereas the average farmer merely receives less from one source of income.

The feed cost of egg production in 1923 on forty-nine farms was determined by the Poultry Specialist at the West Virginia University from farm records of feed used and eggs produced. The average egg production per hen was 144 eggs, and the average price received was 36 cents a dozen, making a gross income per hen of \$4.32. Feed cost amounted to \$1.41 per hen leaving receipts above feed cost of \$2.91 per hen.

The production of these flocks, however, was above the average for the state and for the territory covered in this survey. Neither does the average farmer feed as well balanced ration as the farmers keeping these records have used. The results, however, indicate that poultry can be kept on farms in this territory at a good profit if proper attention is given to the care and feeding.

The movement of poultry and eggs by rail out of the counties where they were produced to the different markets is shown in Table XIV. A total of 3,088,000 dozens of eggs and 1,770,000 pounds of poultry was shipped out of the Ohio River Area in 1923. Only a small portion of these shipments, about 15 per cent, went to Charleston and about 62 per cent went to Pitts-

burgh. The remainder was distributed among the markets of Huntington and Wheeling, the coal fields, and smaller markets.

TABLE XIV.—VOLUME AND DESTINATION OF POULTRY AND EGG SHIPMENTS BY RAIL FROM DIFFERENT AREAS, 1923.

Eggs in Thousands of Dozens							
Producing Areas	Total	Charleston	Pittsburgh	Coal Fields	Huntington	Eastern Market	Other Markets
Ohio River Area....	2,066	323	1,284	70	117		272
Greenbrier Area	924	12		629	11	267	5
Clay County	97	97					
Total	3,087	432	1,284	699	128	267	277

Chickens in Thousands of Pounds							
Ohio River Area....	790	100	462	51	117		60
Greenbrier Area	693	81		187	81	325	19
Clay County	106	106					
Total.....	1,589	287	462	238	198	325	79

Turkeys in Thousands of Pounds							
Greenbrier	1,577					1,577	
Clay County	1	1					
Total	1,578	1				1,577	

Practically all of the poultry products raised in the Mountainous Area are consumed at home or in the small mining towns scattered throughout the counties. Clay County, however, shipped nearly 100,000 dozen eggs and 100,000 pounds of poultry into Charleston during 1923 by rail.

A large surplus of poultry products is produced in the Greenbrier Area also. In 1923 a total of 925,000 dozen eggs were shipped out of these three counties by rail. Nearly seventy per cent of the eggs and thirty per cent of the poultry was marketed in the coal fields. In addition to these shipments by rail there was also a large quantity trucked into the coal fields. The amount demanded on these markets is, of course, dependent on conditions in the coal industry. The eastern markets, New York, Philadelphia, Baltimore, and others received nearly fifty per cent of the shipments of chickens and twenty per cent of the eggs. Charleston, Huntington, and other nearby markets received the remainder.

Turkey raising in this area is a very important industry and large numbers of them are shipped out each year. In 1923 more than 4,500,000 pounds of turkeys mostly dressed, were shipped to the Eastern markets during November and December. The gross returns from this amounted to more than \$600,000.

The production of poultry and eggs in this territory far exceeds its demands. Shipments of eggs to outside markets from Jackson County alone in 1923 were sufficient to supply the people of Charleston with twenty-two dozens per capita which is four dozens more than the average per capita consumption for the United States as a whole. Charleston however received seventy-two carloads of eggs from outside the state. Most of these were cold storage eggs and came onto the market during the fall and winter months (see Figure 12) when the local production was lowest. These receipts, however, are due to the demand for the cheaper cold storage eggs of local production.

CARLOT RECEIPTS OF EGGS
CHARLESTON, 1923

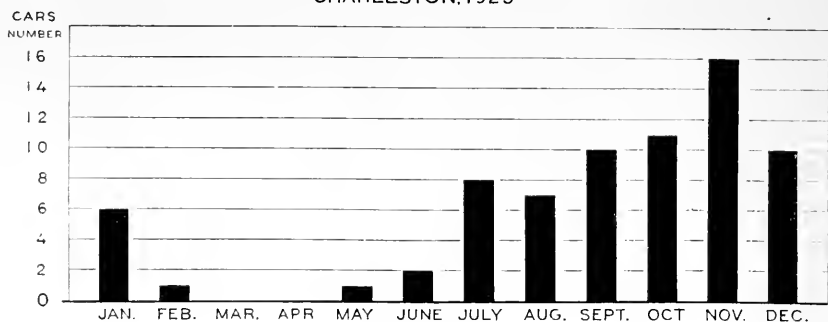


Figure 12.

The movement of poultry products to market flows through a number of different channels. The largest volume, however, is handled through wholesale poultry dealers who buy from farmers and local stores. They grade and repack the products for shipment to terminal and other markets. Some of the local stores ship their own eggs to terminal markets and others, especially in the neighborhood of Charleston and the coal fields, truck their products to market and sell to retailers or wholesalers. There are also a few farmers and pultrymen who ship their eggs by parcels post to special customers.

The volume of poultry and eggs shipped out of Jackson, Mason, and Greenbrier counties is sufficient to justify some concerted effort in the grading and standardizing of these products at the local shipping points. An improvement of the quality of eggs shipped out is one of the best ways of helping the poultry industry.

Local groups of farmers in a number of counties in West Virginia have begun to grade, standardize, and market their products cooperatively. They are selling under the "Mountain State Brand". Such efforts tend to improve the quality of local product and should be encouraged.

The trend of prices for eggs on the New York market by months since January 1920 is shown in Figure 13. There has always been a seasonal decline in prices during the spring and rise in prices during the winter months. In the spring of 1923 the prices went to a much lower level than the year before, which is merely a reflection of an increase in supply of eggs in the United States. The Agricultural Outlook for 1924, published by the Bureau of Agricultural Economics, estimates "that there were 474,000,000 chickens on farms January 1, an increase of 50,000,000 or 12 per cent since the preceding year and of 115,000,000 since January 1, 1920, or about 20 per cent increase. The production of eggs increased 33.3 per cent from 1920 to 1923.

PRICES OF EGGS AT NEW YORK
WESTERN REGULAR PACKED FIRSTS
1920-1924

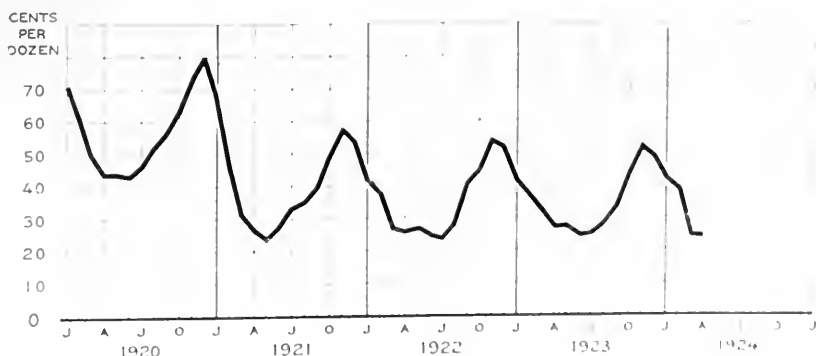


Figure 13.

The prices quoted on the New York market for dressed turkeys during the marketing season for the last four years is shown in Table XV. Prices in 1923 were also the lowest for the last four years.

TABLE XV.—DRESSED TURKEY PRICES IN CENTS—NEW YORK MARKET 1920-1923.

	1920		1921		1922		1923	
	Low	High	Low	High	Low	High	Low	High
October	39	— 56	25	— 50	30	— 55	40	— 60
November	40	— 55	30	— 58	43	— 60	22	— 60
December	42	— 60	45	— 56	38	— 56	23	— 40
Year's Average....	40.3	— 57	33.3	— 54.6	37	— 57	28.3	— 53.3

In view of this general increase in supply of poultry and eggs on farms, the poultry business, especially on specialized poultry farms, should be expanded only after very careful consideration. More emphasis and attention should be placed upon improved methods of feeding and increased productions of eggs during the winter months, when prices are always high and there is little difficulty in finding a ready market.

MEATS

Consumption.—Charleston received more than nineteen million pounds of Packing House Products in 1923. More than sixty per cent of these receipts were from Chicago and the remainder from miscellaneous points as shown in Table XVI.

TABLE XVI.—RECEIPTS OF PACKING HOUSE PRODUCTS BY FREIGHT AND EXPRESS AND CARRYING CHARGES OF SAME BY POINTS OF ORIGIN.

Points of Origin of Shipment	Receipts by Freight			Receipts by Express		
	Number of Cars	Total Net Weight in Pounds	Freight Charges	Total Net Weight in Pounds	Express Charges	Total Carrying Charges
Chicago	458	12,137,000	\$55,830.00	2,352	\$ 55.00	\$55,885.00
Cincinnati	102	2,703,000	15,542.00	89,585	1,433.00	16,975.00
Indianapolis	92	2,438,000	12,443.00			12,443.00
Wheeling	70	1,855,000	8,162.00	46,362	469.00	8,631.00
Texas	2	53,000	554.00			554.00
Louisville	1	26,500	183.00	4,682	94.00	277.00
Maryland				3,018	54.00	54.00
New York				1,621	35.00	35.00
Miscellaneous				22,136	444.00	444.00
Misc. L. C. L.		79,000				
Total	725	19,291,000	\$92,681.00	169,756	\$2,584.00	\$95,298.00

Only about forty per cent of the total receipts, however, was consumed in Charleston, the remainder being redistributed to the coal fields and adjacent towns.

The local abbatoir slaughtered about ten per cent of the beef and nineteen per cent of the pork consumed in Charleston proper. Per capita meat consumption in Charleston corresponds closely with that of the United States as shown in Table XVII.

TABLE XVII.—PER CAPITA CONSUMPTION OF BEEF, PORK, AND MUTTON (POUNDS).

	Beef	Pork
United States	57.7	72.8
Charleston	58.7	68.7
		6.1
		4.8

Packing House Products* include meats, lard, butter, cheese and eggs. Chicago is the large assembling point for these products. It was impractical to try to assign these products to the states which produced the raw material.

Production.—The production of livestock in this territory consists largely of cattle and sheep. Only a very few hogs are produced for market. The cattle and sheep are practically all finished for market on blue grass pasture, but a few carloads are fattened in dry lots by cattlemen along the Ohio River bottoms when corn yields are high.

The usual practice of cattlemen is to buy up two-year-old steers, from farmers located in the rougher sections where the grass will not fatten heavy cattle, as soon as their current year's supply has been shipped to market. This is usually during August and September, and the two-year-olds are then pastured until late in the fall and carried through the winter on a maintenance ration consisting principally of dry roughage. Silage is made an important part of the ration on farms that have a silo. These cattle come through the winter with very little, if any, gain. They are turned on pasture about the middle of May and in the 120 to 150 days before shipment put on from 200 to 300 pounds in weight.

The cost of producing these steers varies with the price of feeds and feeding practices of the farmer.

The trend of cattle, sheep, and hog prices on the Chicago market for the last five years is shown in Figure 14.

*United States Department of Agriculture, Circular 244.

PRICES OF HOGS, STEERS AND LAMBS CHICAGO, 1920-1924

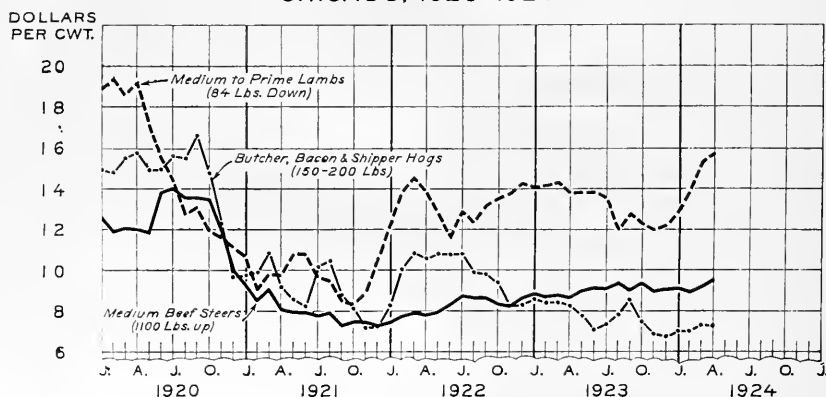


Figure 14.

The much higher relative position of lamb prices over cattle prices indicate very clearly the relative profitableness of the two industries

The number of cattle, sheep, and hogs in the thirteen counties has remained fairly constant since 1900. Falling prices of cattle and the relative profitableness of sheep over cattle has caused little change in numbers. This stability has been due in large measure to the large amount of land that is suited only for grazing purposes and the reluctance of farmers in changing from the production of one kind of livestock to another. The shift from cattle to sheep is hindered by the danger of sheep diseases, depredations of dogs and lack of fencing. These points should be given serious consideration, but it seems as though many stockmen could to advantage replace a part of their cattle with sheep.

Marketing.—A large part of the livestock produced in these thirteen counties is shipped to terminal markets. Only a small portion is sold to local abattoirs and butchers.

The carlot shipments of livestock from each area to the different markets is shown in Table XVIII.

TABLE XVIII.—CARLOT MOVEMENTS OF LIVESTOCK TO MARKET IN 1923.

	Cattle	Sheep	Hogs
Ohio River Area.....	748	95	11
Greenbrier Area	469	223	17
Mountainous Area	12		
Total	1,229	318	28

Jersey City receives by far the largest part of the shipments from the Greenbrier Area and Pittsburgh from the Ohio River Area. Jersey City is considered the best market for cattle and sheep of high quality, and Baltimore for stock of medium to poor grade. Pittsburg is considered a good market for most grades of cattle and sheep, but the highest quality livestock even from the Ohio River Area go to the Jersey City market.

The assembling and shipping of most of the livestock is done by local buyers, who grade and classify it before shipping. They assume the risk of market fluctuations between the time of purchase from the farmers and sale on the terminal market, and loss due to shrinkage or injury of the animals.



Assembling Cattle for Market from the Greenbrier Area

These buyers usually buy from the farmer at a straight price per hundred pounds for all grades. Many farmers think that the margin taken is too high for the risks taken and services rendered. Several of the counties consequently have organized cooperative livestock shipping associations in the hopes of eliminating some of the margin. They have also felt that by shipping a large number of carloads to one commission company that they could get better service and obtain a higher price on the market. The Greenbrier Valley Cooperative Livestock Shippers' Association handled from fifteen to twenty per cent of the total shipments from its territory in 1923. Similar associations are being formed in the Ohio River Area which ship principally to the Producers Commission Association at Pittsburgh, of which they are members.

The volume of shipments of livestock to terminal markets and shipment back of meats, (as shown in this report,) may be due to claims of economies by large packers in quantity production, utilization of waste products and efficiency in distribution which more than offset the additional cost of transportation.

Local abbatoirs and butchers buy a small number of livestock from farmers and have been fairly successful in retailing their meat. They should be encouraged wherever the situation merits their establishment, as they furnish a ready market for small lots of livestock throughout the year.

SUMMARY

GENERAL—

1.—Soil and climatic conditions are adapted to the production of each of the important perishable food commodities included in the study.

2.—Charleston and its trade territory furnish a large demand for these products.

3.—Industrial stability assures a steady demand for these products in the future.

4.—Perishable farm commodities offered on the Charleston market taken as a whole are not of a high quality.

5.—There is a strong demand for high quality products on the Charleston market.

6.—Local producers should cater to this demand for high quality products.

POTATOES—

1.—The receipts of potatoes by rail on the Charleston market in 1923 were 327,000 bushels. At an average yield of 150 bushels per acre, it would require 2,180 acres to produce this volume of potatoes. The acreage required to produce the potatoes shipped in car-lots out of the localities where grown in the thirteen counties studied was only 213 acres.

2.—The movement in car-lot shipments of locally produced potatoes to the local markets would be facilitated by an organization that would establish marketing channels and standardize the grade and quality.

3.—Local groups of farmers forming "Potato Rings" can reduce the cost of producing potatoes by cooperative purchase of graders, sprayers, and other special potato machinery and supplies.

4.—Potato prices fluctuate widely from year to year. Farmers should consider the average price over a period of years as the basis for planning their potato acreage rather than the price of any one year.

5.—Early potatoes are more profitable for this section than late potatoes.

6.—Early potatoes, at least to some extent, can replace corn on good potato soil on the average farm with profit to the producer. The extra cost for fertilizer, seed, spray materials, and labor are much more than offset by the increased returns.

DAIRYING—

1.—The per capita milk consumption for Charleston was .75 pounds or about three-fourths of a pint per day. This is lower than the average for the United States.

2.—The retail price of milk in Charleston is higher than the average for the United States.

3.—The retail price of milk is not the same to all consumers.

4.—Producers do not have an organization to regulate the distribution of milk.

5.—There is a place in Kanawha County for some producers of Grade "A" milk but their profits depend for the most part on selecting individual cows for high production and feeding those cows on a production basis.

6.—The production of Grade "B" milk should be discouraged in Kanawha County.

7.—Production of Grade "B" milk by commercial dairies, an increase in the number of farmers keeping cows for cream production, and production of milk for ice cream factories or specific markets may be encouraged in the Ohio River Valley and Greenbrier areas.

TRUCK CROPS—

1.—Charleston's Trade Territory is not supplying more than one-fifth of the truck crops demanded by the Charleston market.

2.—This small production of truck crops cannot be attributed either to unsuitable climatic conditions, lack of suitable land, or lack of sufficient demand.

3.—There is an occasional oversupply of beans and tomatoes on the market during the peak of the local marketing season which could be avoided with proper marketing facilities, and a better distribution of planting on the part of the growers.

4.—Truck growers need to give more attention to the grade and quality of their products which are placed on the market.

5.—A curb market, or farmer's wholesale market would facilitate the marketing of truck crops and stimulate local production.

6.—A number of farmers on good trucking soil in the vicinity of Charleston should find the production of truck crops for this market a profitable enterprise.

FRUIT—

1. Charleston receives but a small portion of its fruit from within its own territory.

2.—Local orchard fruit is discriminated against on the local market because of quality, which is due largely to lack of spraying and other improved cultural methods.

3.—The demand for strawberries is supplied by local production during the harvest season.

4.—The local production of grapes does not nearly supply the demand of Charleston. Farmers considering the production of grapes can depend upon a market for their product in Charleston if the grade and quality are satisfactory.

POULTRY—

1.—A larger quantity of poultry and eggs are produced in Charleston's Trade Territory than is consumed in the territory.

2.—Large quantities of poultry and eggs are shipped to Pittsburg, and to Eastern markets.

3.—A wholesale house handling poultry and eggs in Charleston would encourage the movement of local poultry products to the Charleston market.

4.—The organization and federation of local groups of producers for the purpose of grading, standardizing, and marketing their poultry and eggs is recommended.

5.—There has been an increase in the production of poultry and eggs in the United States. In view of this fact more attention should be given to increased production of eggs in winter months, the increase in production per hen, and in the grading of eggs, rather than to an increase in the numbers of poultry.

MEATS—

1.—Charleston's Trade Territory ships out a larger volume of livestock than is shipped back as meat. A much closer adjustment of local production to consumption cannot be expected on account of the economies of quantity production, utilization of waste products and efficiency of distribution of the large packing companies at terminal markets.

2.—In view of the high price of wool and lambs as compared to beef cattle many livestock farmers would doubtless find it profitable to replace some of their beef cattle with sheep.

